

*Thesis submitted for the purpose of obtaining the degree of  
Doctor in Art Studies and Archaeology at the VUB  
Doctor of Philosophy at the University of Kent*

**Change and Continuity at the Roman Fort at Oudenburg  
from the late 2nd until the early 5th century AD,  
with a particular focus on the evidence of the material  
culture and its significance within the wider context of  
the Roman North Sea and Channel frontier zone.**

**Volume II: APPENDICES**

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2017-2018

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## APPENDIX 1 - Overview of the archaeological observations at Oudenburg which yield information on the Roman character of the sand ridge

All known archaeological observations in the city centre of Oudenburg (until the summer of 2016) which are meaningful for the interpretation of the Roman site and its location, are mapped and listed according to type of observation: excavations and trial trenches (ET) / site observations (SO) / finds from fieldwalking (FF) / find reporting (FR)). Reported non-Roman finds are not included. The project codes are referred to in the thesis text. For the location of these archaeological observations, see Plate III (and IV). For a full, digital version of this overview: Addendum 1.



NEW PROJECT CODE	SITE CODE	alternative name	location	general results for Roman period	principal info concerning Roman occupation
Class.					
1	ET01a	Trench I (W) and II (E)	along Weststraat	Investigation of southern trench profile in both trenches I and II; Upper c. 1.5 m: dark earth, underneath: medieval horizon with mainly high medieval so-called Pingsdorf sherds and Roman ceramics and CPM on top of Pleistocene sand; Trench II: starting in the middle of the trench, feature going down to the east, filled in with humic black 'sand', 'smelling of peat' according to Mertens	Trench II: localisation western end of defense ditch Roman fort
2	ET01b	Trench III	along Weststraat	Investigation of northern trench profile; underneath dark earth: debris level of Roman and medieval material, with especially in the center concentration of Tournai limestone and white and pink mortar; below: humic black brown sand, possibly edge of ditch or waterway transversally cut	occupation layers inner building Roman fort
3	ET01c	Trench IV	along Keistraat	Roman occupation layers underneath dark earth of c. 1.5 m and a debris layer full of bone, stone and mortar; according to the recent research Mertens possibly cut the western edge of the defense ditch around the slope fort	occupation layers inner building Roman fort
4	ET02a	Trench V	east of Keistraat	robber trench stone defense wall, youngest defense ditch, older ditch underneath robber trench, the same ditch as in trench XIII; the defense wall was broken out and removed after the related ditch was filled up	southern defence system
5	ET02b	Trench VI	east of Weststraat, parking lots behind city hall	eastern profile at southern end; presumed start of the youngest defense ditch to the south (northern edge of ditch), to the north: a layer of black clay of approx. 1 m thick, containing Roman building debris. From the centre of the trench onwards, a downwards slope to the north, with a slope with peaty layer, 9 cm thick, with 'vegetal formation', covered by black compact 'mud' with on top a steme sand level, all cut by a possible large gully	localisation of defense ditch and presumed edge of sand ridge
6	ET02c	Trench VI a	east of Weststraat, parking lots behind city hall	eastern profile: start of northern defense ditch and robber trench stone defensive wall	localisation of stone defensive wall and defense ditch
7	ET02d	Trench VI b	east of Weststraat, parking lots behind city hall	western profile: older ditches south of edge of robber trench of stone defensive wall	localisation of stone defensive wall and defense ditch
8	ET02e	Trench VII	east of Weststraat, parking lots behind city hall	eastern profile: occupation layers inner building area fort, underneath dark earth full of animal bones, consumption waste and shell	localisation of Roman fort
9	ET02f	Trench IX	east of Weststraat, parking lots behind city hall	remains of wall of corner tower (lowest 20 cm presumed in situ wall with large, thick irregular blocks of Tournai limestone, some put on their side, immediately onto the virgin soil, the Pleistocene sand, width: c. 1.25 m); to the north: two parallel construction slots, presumed remains of wooden corner tower of last earth-and-timber fort (because filled in with limestone debris)	localisation of corner tower
10	ET02g	Trench X	east of Weststraat, parking lots behind city hall	robber trench of the northwest corner tower	localisation of corner tower
11	ET02h	Trench XI	east of Weststraat, parking lots behind city hall	debris layers full of demolition waste up to ~2.45 m below current running surface, on top of Pleistocene sand, according to Mertens (probably (edge of) ditch, disturbed by robber trench defense wall)	localisation of defense ditch
12	ET02i	Trench XIII	east of Weststraat, parking lots behind city hall	robber trench wall of corner tower with older ditch underneath of c. 3 m width of earth-and-timber phase, according to Mertens cf. ditch in Trench V	localisation of corner tower of fort and defense ditch
13	ET02j	Trench XIV	east of Weststraat, parking lots behind city hall	southern profile: robber trench of western stone defense wall with remains of earthen wall levels to the east	localisation of stone defensive wall
14	ET02k	Trench XV	east of Weststraat, parking lots behind city hall	complete trench in late Roman ditch according to overview map (no detailed record)	localisation of defense ditch
15	ET02l	Trench XVII	east of Keistraat	eastern profile, southern end: robber trench stone defense wall with to the north presumed ditch and two construction slots or postholes of earth-and-timber phase (fort level 1?) unclear situation: humic black 'mud' on top of virgin soil, not documented further; probably ditch fillings	localisation of defence system
16	ET02m	Trench XVIII	east of Kapellestraat	unclear situation, cf. Trench XX: humic black 'mud' on top of virgin soil (Pleistocene Sand); which is here on a higher level than in Trench XVIII; probably situated in ditch fillings	
17	ET02n	Trench XX	east of Kapellestraat	probably situated in ditch fillings, virgin soil at a depth of more than 3.10 m	
18	ET02o	Trench XXI	east of Kapellestraat	robber trench full of shell mortar and turf stone, from another stone construction than the defense wall	
19	ET02p	Trench XXIII	east of Kapellestraat		
20	ET03	Hoogstraat, behind school		presumed medieval ditch, no Roman finds	
21	ET04	Stationsstraat (7 trenches)		remains of the Romanesque abbey church (1056-1070) of the abbey of Saint-Pieters and later gothic renovation, underneath Roman finds and features	remains of the mid-Roman settlement

NEW PROJECT CODE	SITE CODE	alternative name	location	general results for Roman period	principal info concerning Roman occupation
22	ET05a	1960 JM castellum	north of Mariestraat, to the west of the church	Trenches XXV>XXXII	localisation of western defense wall, gate and several phases of fort defences
23	ET05b	1960 JM castellum	north of Mariestraat, to the west of the church	Trench XXXV	localisation of western defense wall, gate and several phases of fort defences
24	ET05c	1960 JM castellum	north of Mariestraat, to the west of the church	Trench XXXVI	localisation of western defense wall, gate and several phases of fort defences
25	ET06	1963-64-68 JM Hoogwegel/1 Hooghe	Kesteedreef 5	Gravenveld A	graveyard A with 216 uncovered graves, second half 4th century-early 5th century; settlement second half 1st century - third quarter 3rd century AD
26	ET07	1970 JM castellum	east of Kerkstraat, south east of the city hall, north west of the church	Trenches I (east) and II (west)	localisation western stone defensive wall - earthen wall - complex stratigraphy inner building of fort
27	ET08	1975 JM Hoogwegel	Hoogwegel (9 trenches) at the north west corner of the church, in the western corner of the cemetery (part of bones)	Trench I	Roman ditches pointing to land division or draining of arable land, edge of sand ridge
28	ET09	1976 JM castellum	Test pit A	Test pit A	different phases of inner building Roman fort
29	ET10	1976-1977 JM castellum	between Kapellestraat and church	Trench I	different phases of inner building Roman fort
30	ET11	1977 JM castellum	between Kapellestraat VII, VIII, IX, X, XI, and church	Trenches II, III, IV, V, VI, VII, VIII, IX, X, XI	different phases of inner building Roman fort: presumed road level related to level 2 or 3, stone building related to level 4, hearths, pits, occupation features of all sorts, from different phases
31	ET12	1990 YH Bekestraat A	along Bekestraat, south of the Hillebeek	Bekestraat A	graveyard of the mid-Roman period and possible edge of civil settlement in the northern half of the excavation area (southern edge of civil settlement); indications for late Roman passage route

NEW PROJECT CODE	SITE CODE	alternative name	location	general results for Roman period	principal info concerning Roman occupation
32	ET13	Bekstraat B / Ter Beke	along Bekstraat, south of the Millbeek	land division ditches with related structures: gullies, ponds, two wells, pits, all from the mid-Roman period; late Roman cart tracks in the southwestern half of the area	indication of possible cattle breeding on the lower, more humid areas at the southern edge of the sand ridge with small parcels during the mid-Roman period: indications for a late Roman passage route
33	ET14		along Westhiesestraat	graves uncovered, mainly cremations; continuation of the 1990 graveyard on area A: c. 400 graves uncovered, mainly cremations; Roman ditches and gullies indicating the use as arable land and wooden well; all mid 3rd century; some 4 late Roman pits with horse skeletons and numerous cart tracks; a younger clay level in the southwestern half of the area related to waterway	graveyard from the mid-Roman period; indications for farming around the mid 3rd century; late Roman horse burials; indications for late Roman passage route; remains of northern end of waterway related to increasing marine influence around the end of the 4th century
34	ET15		along Westhiesestraat	continuation of cremation graveyard from mid-Roman period	cremation graveyard mid-Roman period
35	ET16		along Hoogstraat 5 and 7	structures (with corner of wooden building) from the end of the 2nd to 3rd century	localization of northeastern corner tower and remains of different phases in inner building
36	ET17	Jacall	along Kapellestraat	remains of robber trench north east corner tower and east stone defensive wall of fort; remains of inner building	the graveyard to the north doesn't extend as far south in this area
37	ET18		between Hovenierstraat and Groeningestraat	no occupation features of the Roman period	
38	ET19	Abtgebouw	along Marktstraat, at the north and north east side of the abbey buildings	no Roman features	
39	ET20	Spiegelgaere	along Marktstraat, central area of building block in between Kerkestraat, Hoogstraat, Weststraat and Marktstraat	southwestern corner area of Roman fort: complete fort stratigraphy with different phases in the defense system and inner building	phasing and chronology of the Roman fort, spatial organisation and evolution
40	ET21	Abtgebouw	along Marktstraat, behind abbey building (3 trenches)	no Roman features	Roman level probably disturbed by medieval level
41	ET22	Abtgebouw	along Marktstraat, behind abbey building	no Roman features	Roman level probably disturbed by medieval level
42	ET23		along Marktstraat, behind abbey building	no Roman features	Roman level probably disturbed by medieval level
43	ET24		along Kapellestraat	no Roman features found, probably mostly cut away by late medieval ditches and late and post-medieval structures (cloth hall and inn)	This site, situated on the north side of the fort, borders the previous one at the west side. This research was engendered by the building of a new flat complex. It revealed the north side of the castellum. Underneath the cellars of the former houses along the Kapellestraat the Roman levels were still preserved in situ. Advantageously only the 'dark earth' of approx 1.5 m was cut away by the construction of the cellars. The Roman horizon was still preserved at the base of the earthen rampart over a surface of several m <sup>2</sup> . The stratigraphic sequence of the Roman levels here resembles to a large extent that of the site on the southwest corner area of the fort. The earthen rampart itself was largely cut away by a late to post-medieval ditch. The last remains of the robber trench of the northern defensive wall and of a projecting intermediate tower were found, the first evidence for the presence of bastions at the fort of Oudenburg. A north-south oriented trench was made transversally on the robber trench up to the north in order to investigate several defensive ditches. They seem to belong to different phases of the fort. Also the possible start of a natural waterway could be detected
44	ET25		along Hoogstraat, on the corner with Marktstraat	no Roman features found, probably mostly cut away by late medieval ditches and late and post-medieval structures (cloth hall and inn)	Roman level probably disturbed by medieval level
45	ET26	Bethove	along Ertelgensestraat, in the garden of the old peoples home Bethove	occupation structures, pits and wells of the 2nd and 3rd century, Roman cremation graves, four inhumation graves, late Roman cart tracks	edge of Roman civil settlement and edge of mid-Roman (to late-Roman?) cemetery
46	ET27		along Bekstraat	ditches and pits from the end of the 2nd - first half 3rd century	Roman so-called 'off-site' features, edge of the mid-Roman civil settlement
47	ET28a		along Ertelgensestraat	Roman ditches, construction slots, pits, cremation graves	edge of settlement mid-Roman period
48	ET28b	Bellerche	along Ertelgensestraat	structures of settlement mid-Roman period bordering road, cremation graveyard mid-Roman period, edge of late Roman inhumation graveyard	settlement mid-Roman period with related cremation graveyard bordering east-west road and connected south-north road; western edge of late Roman cemetery
49	ET29		along Bekstraat	Roman features from the end of the 2nd - first half 3rd century	edge of settlement mid-Roman period
50	ET30		Weststraat	no Roman features, all cut by late medieval ditches	Roman level probably disturbed by medieval level
51	ET31		Hoogwegel	Roman pits	features of settlement mid-Roman period
52	ET32		Westkerkestraat-Hoogstraat	some Roman features underneath (late) medieval roads and ditches: Window F: no Roman features; Window G: no Roman features, but some Roman finds; Window H: no Roman features; Window I: two presumable mid-Roman features: one posthole (?), one pit; Window J: presumable mid-Roman horizon	features of settlement mid-Roman period

NEW PROJECT CODE	SITE CODE	alternative name	location	general results for Roman period	principal info concerning Roman occupation
53	ET33	2011 WJ2/D Nieuwstraat	along Nieuwstraat	total absence of Roman features and finds	confirmation of the research of De Vos 2004; no continuation of the cremation graveyard in this area; the core of this cremation graveyard stretched in the northern half of the Groeningestraat-Hovenierstraat area, to the south continuation as narrow strip, probably along Roman road, as far as around the current junction Nieuwstraat-Groeningestraat
54	SO01	1956 JM Weststraat A	along Weststraat	virgin soil at 0.70 m below current surface, no Roman features	absence of Roman features; absence of 'dark earth'
55	SO02	1956 JM Weststraat B	along Weststraat	presumed start of ditch in western part, medieval ditch?	
56	SO03	1962 JM Hoogwegel	along Goedeboetenstraat, Graveyard B	three infumation graves with grave goods: grave A with face pot from Hadham (UK), graves B and C with 'Spunuchbecher'; underneath remains of older occupation from 2nd-3rd century, consisting of mortar-floor debris and sherds	fragment of graveyard B, generally dated to end 3rd - first half 4th century; continuation of older settlement
57	SO04	1975 JM Goedeboetenstraat	along Goedeboetenstraat	virgin soil at 0.80 m below current surface; no Roman features	location still on the sand ridge
58	SO05	1975 JM Hoogwegel/Kasteeldreef	at corner of Hoogwegel and Kasteeldreef	two presumed Roman ditches, running parallel WNW-ESE	presumed remains of land division / draining of arable land
59	SO06	1982 YH Kasteeldreef B	along Kasteeldreef ('Oude Molen')	Roman finds: ceramics, ceramic building material, glass, 6 iron nails, iron slag, bronze hook with snaker head, animal bones, some presumed human bones	remains of settlement from the mid-Roman period and finds from the late Roman graveyard
60	SO07	1982 YH Brouwerijstraat	along Brouwerijstraat ('Oude Molen')	along Brouwerijstraat	
61	SO08	1982 YH Abdijlaan A	along Abdijlaan	Roman ceramics (4-4 sherds)	finds of the settlement of the mid-Roman period
62	SO09	1983 YH Bekestraat	along Bekestraat	Roman ceramics (3 sherds)	finds of the settlement of the mid-Roman period
63	SO10	1982 YH Weststraat	along Weststraat	Roman ceramics	finds of the settlement of the mid-Roman period
64	SO11	1982 YH Burgstraat	along Brouwerijstraat ('Oude Molen')	large amount of Roman ceramics, also ceramic building material, three iron nails, a wetstone, some animal bones	finds of the settlement of the mid-Roman period
65	SO12	1983 YH Burgstraat	along Burgstraat	two Roman ditches and several wall remains; a lot of Roman ceramics, some ceramic building material, an iron stylus, limestone fragments, some animal bones	structures and finds of the settlement of the mid-Roman period
66	SO13	1984 YH Burgstraat	along Burgstraat ('Oude Molen')	Roman ceramics (4 sherds) and two tile fragments	finds of the settlement of the mid-Roman period
67	SO14	1984 YH Kasteeldreef	along Kasteeldreef	Roman ceramics, bronze crossbow brooch, fragments of human skeleton	finds of the settlement of the mid-Roman period and of the late Roman graveyard
68	SO15	1984 YH Marktstraat	along Marktstraat	no Roman finds	
69	SO16	1984 YH Stationsstraat/Marktstraat A	Marktstraat (in publication wrongly listed as Stationsstraat)	along the complete length of the Marktstraat: (to the south of the crosspoint with Abdijlaan) a 13th century accumulation was registered, to a depth of 1.50 underneath the current surface, containing mainly household waste (ceramics, leather finds, animal bones); the bottom of this level could not be reached	continuation of the medieval dark earth
70	SO17	1984 YH Stationsstraat/Marktstraat B	Marktstraat	no 13th century accumulation as in SO16; but filled ditch related to the fort built from 1584 onwards around the remains of the ruined medieval abbey; at a depth of 1.5 m Roman features (personal comm. YH)	features of the settlement of the mid-Roman period
71	SO18	1984 YH Stationsstraat/Marktstraat C	Marktstraat 21 (in publication wrongly listed as Stationsstraat)	Roman finds in situ from a pit (ceramic building material, shells, some animal bones, ceramics from 2nd - 3rd century)	features of the settlement of the mid-Roman period
72	SO19	1984 YH Abdijlaan/Stationsstraat	corner of Abdijlaan and Stationsstraat	two infumation graves belonging to the Saint-Pieters church; remains of the abbey; no Roman features	
73	SO20	1984 YH Marktstraat	along Marktstraat, behind the abbey homestead	no Roman finds	
74	SO21	1989 YH Bekestraat	along Bekestraat	some Roman pits and ceramics from the mid-Roman period (with samian sherd from the first half of the 3rd century)	features of the settlement of the mid-Roman period
75	SO22	1991 YH Weststraat	along Weststraat	only one Roman sherd; 13th century ditch, 14th-15th and 16th century levels	no traces of the late Roman defense ditch; only 13th century ditch (for drainage or land division)
76	SO23	1993-5 YH Westkerkestraat/Nieuwstraat/Hovenierstraat	between Westkerkestraat and Nieuwstraat, along Groeningestraat and Hovenierstraat	continuation of cremation graveyard from mid-Roman period; mainly cremation graves, one infumation grave	extent of mid-Roman graveyard
77	SO24	1992 YH Nieuwstraat/Groeningestraat	at corner of Nieuwstraat and Groeningestraat	eight cremation graves	continuation of the mid-Roman graveyard
78	SO25	1997 YH Eitelgerestraat/Kerphofsstraat	at corner of Kerphofsstraat and Eitelgerestraat	absence of Roman finds; only late to post-medieval layers and finds (because of limited depth of trenches?)	possible indication for absence of occupation at this location in the mid-Roman period
79	SO26	199X YH Cono van Einelaan	along Cono van Einelaan	Iron Age slag	
80	SO27	1990-2000? YH Laurierenlaan	along Laurierenlaan	no archaeological features; marine sediments on pleistocene sand, locally Pleistocene sand 3rd-century well, with wickerwork basket	location on the edge of the sand ridge
81	SO28	2010 WD Weststraat	Weststraat 13, garden	many Roman finds in orchard shortly before changed into cultivated land; test-pit east of the Kerkestraat (a): no features or finds; test-pit west of the Kerkestraat (b): Roman ceramic building material, at 1.5 m depth stone foundation which could not be dated, presumably post-Roman	well of the settlement, west of the fort
82	FF01 (a and b)	1955 YH Hoogstraat	near Hoogstraat		finds of the Roman fort
83	FF02	1982 YH Kasteeldreef A	along Kasteeldreef ('Oude Molen')	Roman ceramics (10 sherds, with one late Roman roller-stamp samian sherd)	the roller-stamp samian sherd (Hülsmers (1968), group 3, dated AD 340-370) is probably related to the late Roman graveyard A; the other ceramics are finds from the mid-Roman settlement
84	FF03	1982 YH Goedeboetenstraat	north of Goedeboetenstraat	two fragments of a late medieval reduced vessel	

NEW PROJECT CODE	SITE CODE	alternative name	location	general results for Roman period	principal info concerning Roman occupation
85					
85	FF04	Ettelgemeestraat/Karpehoofstraat	corner of Ettelgemeestraat and Karpehoofstraat	Roman ceramics (19 sherds)	finds of the mid-Roman settlement
86	FF05	near Abdijstraat, SW	near Abdijstraat, SW	no Roman ceramics, only medieval ceramics related to the Saint-Pieters abbey	
87	FF06	near Westkerkestraat	corner of pasture (Hoveniersstraat)	one Roman samian sherd, worn	find from the mid-Roman settlement
88	FF07	near the Millebeek	near the Millebeek	Roman ceramics (with some late Roman roller stamp samian) and a tile fragment	finds probably from a late Roman passage route, near the southern gate of the fort
89	FF08	1983 YH Westkerkestraat	Westkerkestraat	one nm sherd decorated with stamped circles, Roman?	finds of the mid-Roman settlement
90	FF09	1983 YH Cottenweg A	near the Cottenweg	Roman ceramics (5 sherds)	finds from the mid-Roman settlement; some sherds possibly related to a late Roman passage route?
91	FF10	1983 YH Millebeek	near the Millebeek	Roman ceramics (17 sherds)	outside the sand ridge
92	FF11	1983 YH Cottenweg B	near the Cottenweg	no Roman ceramics, large amount of high medieval sherds related to an occupation site	
93	FF12	1983 YH Leperheed	near the Leperheed, Pellingstraat	Roman ceramics (4 sherds)	finds from the mid-Roman settlement
94	FF13	1983 YH Cottenweg C	near the Cottenweg	no Roman finds, only high, late and post-medieval sherds	outside the sand ridge
95	FF14	1983 YH Baarsstraat	along Vriessstraat (Baarsstraat)	only one Roman sherd, worn	Roman find on the edge of the sand ridge
96	FF15	1983 YH Cottenweg D	along Cottenweg	no Roman finds, only late medieval finds	outside the sand ridge
97	FF16	1983 YH Ettelgemeestraat/Zeeweg	near Ettelgemeestraat and Zeeweg	one Roman sherd (Eifel) on the northern half of the parcel	late Roman find, from late Roman settlement at the edge of the sand ridge
98	FF17	2010 DV Goedebooterstraat	along Goedebooterstraat, south side	Roman ceramics, mostly from 542h and 542a; a lot of clay in the soil	finds of the mid-Roman settlement
99	FF18	2012 DV Goedebooterstraat	along Goedebooterstraat, north side	only post-medieval ceramics from ditch	
100	FF19	2012/13 WD/DV Goedebooterstraat	along Goedebooterstraat, south side	concentration of Roman ceramics, 2nd-3rd century, in area of c. 50 x 50 m; many large and well preserved fragments indicating that sherds in situ were bloughed up	finds of the mid-Roman settlement published as 'remains of a Roman ship', however very suspicious (find only known from report in newspaper, could never be verified); rather likely that it concerns the remains of a late medieval or post-medieval boat, related to thienbery medieval ditch/channel
101	FR01	1800? MG Hoogstraat/Westkerkestraat	near Hoogstraat and Westkerkestraat, on parcel aligned by Hoogstraat and Millebeek	remains of a ship (?), further evidence and data on techniques, measurements, finds, ... are lacking	
102	FR02	195X YH Millebeek	south of Millebeek, south of Saint-Andreas school	coin of Antoninus Pius, sestertius, Rome, 140-143	find of the mid-Roman settlement
103	FR03	1950 YH Zeeweg	near Zeeweg	coin of Antoninus Pius, as, Rome, 140-144	find of the mid-Roman settlement, so far most eastern find for the extent of the settlement
104	FR04	1956 JM Markt	Markt	Roman coin	
105	FR05	1959 JM Goedebooterstraat	corner of Goedebooterstraat and Inkweg	colour-coated beaker with rouletting, Cologne, type NR32c/Gase 198, end 2nd-beginning 3rd century	find of the mid-Roman occupation, most likely a gravegood
106	FR06	195X SDC Nieuwstraat	Nieuwstraat 26	3 complete vessels (a sigillata beaker, a colour-coated dented beaker and a jug), probably coming from niche of grave, probably in situ vessels	cremation grave(s) of the mid-Roman graveyard, indication of the extent of the graveyard, most southern find so far
107	FR07	196X YH Burgstraat	near Burgstraat	coin of Constantius II, unknown workshop, 330-335	coin from late Roman passage route?
108	FR08a	1960 JM Hoogwegel A	along Hoogwegel ('t Hoopje)	many sherds: virgin soil at -0.80 m with many features; waste pits (Mertens also points to 'a grave'; cf. 'kegel' (kegel is an amateur-archaeologist from Aardenburg, who had a lot of finds from Oudenburg); note not clear)	features of the mid-Roman settlement
109	FR08b	1960 JM Hoogwegel B	along Hoogwegel ('t Hoopje)	find of a lot of ceramic building material and red fresco	indications for an important Roman building of the mid-Roman settlement?
110	FR09	196X YH Hoogwegel	near Hoogwegel	three fragments of bronze brooches, according to the finder originating from a waste pit full of bones	finds of the mid-Roman settlement
111	FR10	1964-5 YH Kasteeldreef (Akkerstraat)	along Kasteeldreef (Akkerstraat)	complete late Roman vessel (Pilling 250, dated to AD 300-325) and coin of Hadrianus, sestertius, Rome, c. 120-125	the complete vessel probably originates from an isolated grave of the 4th century graveyard; the coin is related to the mid-Roman settlement
112	FR11	196X YH Burgstraat	along Burgstraat	two Roman sherds (one samian)	finds of the mid-Roman settlement
113	FR12	1969 YH Jeugdpad	Jeugdpad	several skeleton fragments with intact skull, presumably adult person, and a colour-coated beaker type Pilling 250 which can be generally dated to the first half of the 4th century	presumed remains of late Roman graveyard A
114	FR13	197X YH Kasteeldreef	near Kasteeldreef	almost completely preserved small Mercurius statue (2nd-3rd century)	find of the mid-Roman settlement
115	FR14	19XX JM Hoogstraat/Weststraat	corner of Hoogstraat and Weststraat, near SW corner fort	some Roman vessels	possible indication for a graveyard of the 2nd-3rd century on this location, but uncertain find
116	FR15	197X JM Burgstraat	along Burgstraat	some Samian sherds (of which a Drag. 31 with the stamp TANMARVVS)	finds of the mid-Roman settlement
117	FR16	1978 YH Burgstraat	along Burgstraat	complete small vessel vit. stud	possibly grave good, of a mid- or late Roman grave?
118	FR17	19XX YH Weststraat	corner of Hoogwegel and Burgstraat	coin Trajanus, sestertius, Rome, 115-116	find of the mid-Roman settlement
119	FR18	1990? YH Burgstraat/Hoogwegel	corner of Hoogwegel and Burgstraat	samian sherd with stamp IVLLIVVS, Lazoux, second half 2nd century AD	find of the mid-Roman settlement

<i>Class</i>	<i>NEW PROJECT CODE</i>	<i>SITE CODE</i>	<i>alternative name</i>	<i>location</i>	<i>general results for Roman period</i>	<i>principal info concerning Roman occupation</i>
120	<b>FR19</b>	1992 YH Jeuggpad		along Jeuggpad east of the Westkerksestraat, south of the Millebeek	several Roman ceramics	finds of the mid-Roman settlement
121	<b>FR20</b>	19XX YH Millebeek		east and north of abbey homestead	coin Septimius Severus, sestertius, Rome, 193	find of the mid-Roman settlement
122	<b>MD01</b>	2009 WD Cottenweg (1)		directly east of abbey homestead (strip of c. 20 m wide)	only late to post medieval metal finds and coins	outside the sand ridge
123	<b>MD02</b>	2009 WD Marktstraat (2)		at the west side of 377k and 379r	concentration of 4 Roman coins: one dupondius 2nd century, 3 late Roman coins (Constantine dynasty), a bronze pendant	finds of the mid-Roman settlement and indications for late Roman features: passage route? occupation? graveyard?
124	<b>MD03</b>	? WD Cottenweg (3)		south of Cottenweg	only late to post medieval metal finds and coins	outside the sand ridge
125	<b>MD04</b>	? WD Goedeboterstraat (4)		south of Goedeboterstraat	only late to post medieval coins; metal finds from all periods, with some Roman finds	finds of the mid-Roman settlement?
126	<b>MD05</b>	? WD Goedeboterstraat (5)		south of Goedeboterstraat	concentration of Roman coins (11): 2 coins Septimius Severus, 1 denarius of Hadrianus, 1 coin of Faustina, 1 silver denarius, 1 coin of Crispus(?), rest: heavily corroded coins	finds of the mid-Roman settlement; indication for late Roman features
127	<b>MD06</b>	? WD Goedeboterstraat (6)		south of Goedeboterstraat	Roman coins and metal finds late medieval till present	
128	<b>MD07</b>	? WD Goedeboterstraat (7)		north of Goedeboterstraat	only late to post-medieval finds	
129	<b>MD08</b>	? WD Goedeboterstraat (8)		north of Goedeboterstraat corner Nieuwstraat-Redinnestraat (Nieuwstraat 10)	mainly metal finds from late Middle Ages till present, two early medieval buckles	
130	<b>MD09</b>	2013 WD Nieuwstraat (9)		corner Goedeboterstraat - Bombeuregeleed, west of Bombeuregeleed	four Roman coins, undetermined	
131	<b>MD10</b>	2013 WD Goedeboterstraat (10)			certainly one (sestertius 2nd half 2nd century AD), maybe three Roman coins	
132	<b>MD11</b>	2013 WD Cottenweg (11)		north side of Cottenweg?	Roman coin, antoninianus, silver (billon), Postumus?	
133	<b>MD12</b>	2014 WD Nieuwstraat (12)		Nieuwstraat 40	two Roman coins, undetermined	

Table 1: Overview of the archaeological observations in the city centre of Oudenburg (situation summer 2016).

## APPENDIX 2 - Trenches made by J. Mertens on the defence area

Trenches made by J. Mertens in the 1950s, 60s and 70s cutting the defensive area: overview of main features and structures of, or related to, the defence system of the successive fort periods; interpretations according to the findings at the south-west corner site.

### Trenches at the western defence area: listed from S to N

#### **1960 Trench XXVI** (Plate XX)

V-shaped ditch level 1; eastern edge of ditch level 2, cutting ditch level 1; two postholes, level 3; robber trench stone wall level 4/5 (stone fort)

#### **1960 Trench XXIX** (Plate XXI)

edge of ditch level 2; robber trench gate tower level 4/5 (stone fort)

#### **1960 Trench XXV** (Plate XXI)

V-shaped ditch level 1; ditch level 2, cutting ditch level 1; ditch level 4/5 (stone fort); robber trenches walls of gate tower (stone fort); earthen rampart layers

#### **1960 Trench XXXII**

transition stone wall - gate tower stone fort

#### **1960 Trench XXVIII** (Plate XXII)

eastern edge of ditch level 1; *in situ* base of foundation wall of stone fort; on top: robber trench of stone wall; to the east: earthen rampart, first phase with sand sods

#### **1957 Trench XXIII**

part of robber trench of stone wall gate tower

#### **1960 Trench XXXI**

edge of robber trench of stone wall gate tower; earthen rampart

#### **1960 Trench XXX**

robber trench stone wall; earthen rampart with sand sods in first phase

#### **1960 Trench XXXVI** (Plate XXII)

V-shaped ditch level 1; robber trench stone wall, 1.30 m wide at the bottom

#### **1960 Trench XXXV** (Plate XXIII)

V-shaped ditch level 2; construction trench stone wall?; robber trench stone wall with to the west some large fragments of wall, not *in situ* but with preserved facing of small Tournai limestone blocks

#### **1956 Trench II** (Plate XXIII)

presumed eastern edge of ditch stone fort (level 4/5)

#### **1960 Trench XIV** (Plate XXIII)

robber trench stone wall; earthen rampart

#### **1970 Trench II** (Plate XXIV)



*in situ* foundation and part of the stone wall itself, within wall trench; to the west start of unattributed ditch; to the east: earthen rampart with first phase with sand sods; gravel layer of Tournai limestone on top of earthen rampart: construction level of stone fort or related to renovation of fort; at level -2.36 m below 1970 running surface: two parallel construction slots

**1957 Trench XIII** (Plate XXV)

V-shaped ditch level 2; robber trench stone wall level 4/5

**1957 Trench XV**

ditch of stone fort

**1957 Trench X**

robber trench stone wall of corner tower, base width of 1.70 m

**1957 Trench IX** (Plate XXV)

robber trench of stone wall with foundation base still *in situ* with irregular blocks of Tournai limestone, some set on their sides, with a width, according to the drawing, of 1.35 m, but noted by Mertens as 1.25 m; to the north side: two presumed construction slots: of quay construction fort level 5? (since partly filled in with robbed demolition debris)

**1957 Trench XI**

up to -2.38 m depth: robbed wall debris; underneath: black organic layer, probably edge of ditch stone fort

**1957 Trench VI-VIa-VIb combined** (Plate XXVI)

from south to north: pre-fort ditch, earthen rampart, very wide robber trench stone wall, presumed postholes level 3 (diameter: 0.28 m) (related to construction slots trench IX?), deep ditch stone fort of 7.75 m wide, shallow ditch stone fort of 6.70 m wide, preceded by shallow ditch of 2.80 m wide; to the north: horizons indicating wetland slope, cut by natural waterway

**1956 Trench III**

presumed western edge of latest defence ditch, slope down to the east

## Trenches at other sides of the fort

**1957 Trench XVII** (Plate XXVI)

presumed defence features of level 1 or 2; robber trench stone wall

**1957 Trench V**

ditch level 1 or 2; to the north: feature of the same or a later level; ditch stone fort



## APPENDIX 3 - Features identified in the 1957 trenches VI–VIa–VIb. Interpretation of the descriptions by J. Mertens

<b>Trench VI East profile (N-S)</b> (according to Mertens 'cum grano solis' since 'recorded partly under water')	
<i>description by Mertens</i>	<i>interpretation</i>
<b>1</b> more recent pit, green sticky clay, with recent, large brick, fragment of Raeren pot	post-medieval pit
<b>2</b> firm, black mud, very sticky and quite hard, very little debris; at the bottom many wood remains, sticks, peatlike, clear line with sand	black organic clay level: flooded in
<b>3</b> yellow sand, brown at the top	Pleistocene sand
<b>4</b> firm, black mud, cf. 2 but with layers of sand, clear flood layers, very little material, piece of stone	flood layers and silting up
<b>5</b> flood layers, sand alternating with mud, animal bones and medieval grey sherds	flood level, medieval
<b>6</b> black 'heavy' mud, hard and sticky; fragment of Roman tile	black organic clay, flood level: marsh
<b>7</b> peat layer with vegetation, c. 9 cm thick	peat layer
<b>8a</b> cover layer of wind-borne sand, presumed silted-up sand, only registered by augering	sand sedimentation?
<b>8b</b> sterile white grey sand	sand sedimentation
<b>9</b> black clay-sand, with fragments of Tournai limestone, some white 'Roman' shell mortar and charcoal, no pottery sherds, very little debris	flood level
<b>10</b> silted up sand and mud, some shells, piece of stone	sedimentation
<b>11</b> mud, with some white Roman mortar, some tile fragments (not always 'old'), pink mortar, fragments of Tournai limestone	flood level
<b>12</b> dark grey to black, peaty layer	flood level: marsh
<b>13</b> greyish green sand with debris, piece of Tournai limestone, mortar	medieval or later infill
<b>Trench VI East profile (N-S), southern part</b>	
<i>description by Mertens</i>	<i>interpretation</i>
<b>1</b> black earth with stone and mainly Roman mortar debris, some Tournai limestone	dark earth
<b>2/9</b> grey sand with a lot of debris, charcoal, bones, Roman tiles and pottery sherds	medieval accumulation
<b>3</b> grey sand with dark bottom flood layer, debris; bottom: bones of large animals, Roman tiles, Roman pottery sherds, mussel shells, black mud, pink mortar and many Tournai limestone gravel fragments	infill of shallow ditch? Or start tidal landscape?
<b>4</b> brown black sand, almost sterile; few pieces of Tournai limestone but less than in 3, some fragments of Roman tile	
<b>5</b> silted-up sand with shells and Roman tiles, charcoal, flooding but not pure	
<b>6</b> cfr. 4 but more sterile	
<b>7</b> sterile sand, top layer brownish, no finds	Pleistocene sand
<b>8</b> cut in brown sand, filled in with grey sand, charcoal and many Tournai limestone fragments	edge of ditch of stone fort (fort level 4)
<b>Trench VIa East profile (N-S)</b>	
<i>description by Mertens</i>	<i>interpretation</i>
<b>1</b> grey sand, recent debris	recent accumulation
<b>2</b> grey sand, mixed up layering, with large amount of Tournai limestone and mortar	dark earth
<b>3</b> black earth with Tournai limestone, white and pink mortar	demolition layer stone wall
<b>4</b> cf. 3, but a lot of demolition debris of Tournai limestone, almost nothing else than stone, a lot of pink mortar and tiles, ceramic building material with mortar, pink and white	demolition layer stone wall
<b>5</b> grey sand with a lot of Tournai limestone, fragments of Roman tiles, shells, pottery sherds	
<b>6</b> organic, black mud, more or less peaty, with a few stone fragments and charcoal	fill of ditch level 4
<b>7</b> hard sand, original?, sedimentation?, not deep, underneath sterile sand	Pleistocene sand with podzol and bioturbation
<b>8</b> posthole?, round, diameter c. 28 cm; grey brownish sand, almost sterile	posthole, of earlier date than fort level 4?
<b>9</b> cfr. 8, at the top a lot of humus, black layer with grey sand	posthole, of earlier date than fort level 4?
<b>10</b> grey sand, sterile	Pleistocene sand
<b>11</b> humus infiltration layers	Pleistocene sand with podzol and bioturbation
<b>12</b> cf. VIb 1	medieval robber trench of stone wall
<b>13</b> bottom of 12: grey sand with thick silt layers, flooded in, with Tournai limestone fragments	
<b>Trench VIb West profile (N-S)</b>	
<i>description by Mertens</i>	<i>interpretation</i>
<b>1</b> grey sandy fill with Tournai limestone, tiles, pottery sherds	medieval robber trench of stone wall
<b>2</b> hard yellow sand with thick humus deposition and infiltration	Pleistocene sand with podzol, infiltration and bioturbation
<b>7</b> accumulated sand, mixed up layering, hard sand with clay and mud, fragments of bone, charcoal, black mud and white sand, 'menapian' pottery sherds	earthen rampart fort level 4/5
<b>8</b> heterogeneous brown sand	part of earthen rampart fort level 4/5
<b>9</b> cf. 2	Pleistocene sand with podzol, infiltration and bioturbation
<b>10</b> greyish brown sand, homogeneous, no finds	ditch prior to stone fort: fort level 2 or 3?
<b>11</b> horizontal layers yellow sand, clay, brown sand, very-thin layered	base of earthen rampart fort level 4?
<b>12</b> grey sand, some debris	earthen rampart fort level 4/5
<b>13</b> black earth with demolition layers, fire layers and Tournai limestone	

Table 2: Trench profiles VI-VIa-VIb: the descriptions (summarised) of J. Mertens (data from Archive Mertens NDO (earliest predecessor of Flanders Heritage Agency)) and interpretation by the present author. (Where 'Tournai limestone' is listed, Mertens in fact wrote 'blue stone', but this should be recognised as the former stone).

## APPENDIX 4 - Analysis of trench profiles at the south-west corner site

The following trench profiles at the south-west corner site are selected as being representative of the stratigraphy encountered at the site (cf. Chapter II.2, Fig. 9 for the location of these trench profiles; see Addendum 2 for description of layers and features, related to the numbers on the drawings):

- **trench profile 5.1**, the southern profile of trench T5 (Plate IX),
- **trench profile 3.1**, the central profile of trench T3 (Plate X), in fact not a 'trench' profile, but included here as indispensable in this series of profiles to understand the defence system,
- **trench profile 3.5**, the northern profile of trench T3 (Plate XI),
- **trench profile 6.2**, the northern profile of trench T6 (Plate XII), the prolongation of trench 3.5,
- **trench profile 6.1**, the southern profile of trench T6 (Plate XIII),
- **trench profile 1.1**, the eastern profile of trench T1 (Plate XIV),
- **trench profile 2.7**, the eastern profile of trench T2(bis) (Plate XV),
- **trench profile 2.2**, the western profile of trench T2 (Plate XVI),
- **trench profile 4.9**, the eastern profile of trench T4bis (Plate XVII),
- **profiles 7.1 and 7.2**, central profiles of trench T7 (Plate XVIII).

Trench profiles 5.1 and 3.5+6.2 and 6.1 show the connection between the defence system and the inner building area by sectioning the site straight on the defence system, while profiles 7.1 and 7.2 give additional information on the transition between the earthen rampart and the inner area. Trench profiles 1.1, 2.7 and 2.2 yield cross sections through the inner building area parallel to the defence system.

### 1. Trench profile 5.1

Trench profile 5.1, the southern profile at the west side of the excavation area, yields a section through successive defence systems and the transition to the inner fort area (Plate IX). Four ditches can be distinguished: the level 1 ditch (4); the level 2 ditch (5) cutting the previous one; on the same trace the level 3 ditch (6) in relation to posthole 9; the edge of a large ditch (3) continuing further to the west. The bottoms of ditch level 1 and ditch level 2 silted up. These successive ditches were filled in prior to the cutting of a new ditch. The three earliest ditches are overlapped by the robber trench of the stone defence wall, which has been completely removed in medieval times.

To the east side of the robber trench, parts of the successive earthen ramparts are preserved. The earliest earthen rampart phase (11), built up of sandy turves, was immediately laid onto the cultivated soil. This phase was partly dug away for the construction of a new earthen rampart (12), presumably to rebuild the palisade. This second earthen rampart phase partly shows a clay layer at the base at the west side, probably to solidify the sand body. In its turn, this earthen rampart was dug out partially to construct the earthen rampart of the following level (13), of which the stone debris in its body seem to indicate that this structure coincides with the construction of the stone wall (level 4). At the base of this earthen rampart (13), the edge of the large waste-pit OS 4980 immediately connects. The structure (15) underneath this earthen rampart is therefore probably to be identified as part of an intermediate level (level 3) or is related to earthworks prior to the construction of the earthen rampart of level 4. The layers stratigraphically related to the latest earthen rampart body phase (14) and coinciding with the filling in of the depression of waste-pit OS 4980, are to be linked with the last phase of the defence system (level 5).

## 2. Profile 3.1

The central profile of trench T3 represents a cross section through the defence system (Plate X) and provides insight into the continuation of several features documented in trench profile 5.1.

Ditches (4), (5) and (6) appear in the same sequence as in the southern profile. The earliest ditch is related to two features to the west, feature (21) and double construction slot (23). Ditch (6) is related to feature (9), in surface level recognised as a gully. Its predecessor (22) is likely to be attributed to the same level as an earlier phase being renovated later on, as their trace are identical. To the east a posthole (14) registered right in front of the profile is equally linked to this level. To the west, these features are cut by the edge of the large ditch (3), the area raised prior to its digging (25). The three earliest ditches are, as noticed on the southern profile, overlapped by the robber trench of the stone wall, which marks a clear cut into the earthen rampart body. The sharp aligned trench at this east side (2), also clear in trench profile 5.1, must have been the location of the original course of the defence wall. Its straight vertical eastern side testifies that the underground extractions were executed from the outside. In comparison to the southern profile, the earlier ditches moved slightly to the west, pointing to a minor changing orientation of the stone fort in comparison to its earth-and-timber predecessors.

The earliest earthen rampart (11) was built directly on top of the cultivated soil and was made of sandy turves, as was clear from the humus dark lines visible in the surface trace. Covering this earthen rampart body, a clay level served as solidification, indicating the preserved original level of the earthen rampart on this location or representing a modification prior to the construction of the second earthen rampart (12). Prior to the construction of the latest preserved earthen rampart body (24), part of the present earthen rampart was cut away, perhaps to renew the palisade. This earthen rampart (24), built up of sandy turves, is likely to be part of the defence system of level 3. Alongside the edge of the robber trench, the parallel trench (10) continuing to the south and up north, is identified as the construction trench for the stone wall.

## 3. Trench profile 3.5

The northern profile of trench T3 (Plate XI), over 3.5 m high, collapsed before registration and could not be remade for logistical reasons. The photos made before the collapse however confirm the continuation of the main features documented in profiles 5.1 and 3.1, as is indicated by the marked ditches (only the certain features are marked). The ditches of level 1 and 2 which were overlapping in profiles 5.1 and 3.1, are now clearly separated, pointing to a slightly changing orientation between the first and second earth-and-timber fort.

## 4. Trench profile 6.2

The longest profile at the north of the excavation area shows a cross section through the transition of the earthen ramparts into the inner building area, being situated straight on the defence system (Plate XII).

At the west side, cut by the medieval robber trench (26), only the base of the eastern edge of the earliest earthen rampart is still visible (11), built immediately onto the cultivated soil. This level 1 earthen rampart is constructed with cultivated soil sand. To the east of the earthen rampart, leaving a space of c. 2.5 m with the base of the rampart, the earliest features are cut directly into the cultivated soil, like feature (27), which is the continuation of gully Plate XXVIII: f. Further to the east, the area appears to be levelled first with clay and sand layers, only c. 5 cm thick, before the following construction took place, which is clear from the cut of feature (28) (the continuation of feature Plate XXVIII: b) and of feature (29) (the extension of the northern construction slot of the

adjacent unit of Unit I). The extraction trace (30) of the latter indicates that the beam of this construction slot was recycled during the following period.

Prior to the occupation of level 2, the area was elevated with sandy layers, locally up to more than 20 cm. To the west, the earthen rampart was built on top of a gravel layer of Tournai limestone covering these levelling layers. The body of the level 2 earthen rampart consisted of sloping layers of sandy turves (12). Directly at the base of the earthen rampart, two gullies ((31) and (32), the continuation of Plate XXX: i) are dated to the construction phase of level 2. A level with some Tournai limestone and a boulder on top of these filled in gullies probably marks the last remains of a road level (33), presumably the *via sagularis*, along the earthen rampart, although this level could not be distinguished in surface further in Trench T7.

The earthen rampart of level 2 has been covered by a more clayish sloping body in level 3, with some sterile clay layers (24). The inner building area is elevated c. 10 cm, mainly with sand (with some clay) layers, before construction took place with which hearth pit (34) can be related. The different level 3 structures uncovered in surface indicate that this level had at least three subphases, of which the hearth pit marks the first one. This explains the phased levelling on top of this hearth pit prior to the occupation of level 4. The remains of a presumed post through the earthen rampart (35) may be the last remnant of the continuation of a camp shedding of the rampart.

In this profile, no earthen rampart can be distinguished related to level 4. On the contrary, the earthen rampart seems to be cut off to enlarge the inner building area. As the earthen rampart of level 4 could be recognised in profile 7.2, the situation on trench profile 6.2 may be local. At this level, the inner building area was elevated by more or less 20 cm of sandy and clayish material, thus resulting in a horizontal level with the area on top of earthen rampart level 3. This level 4 equally represents several subphases, demonstrated by the renovations in the workshops uncovered in horizontal surface. After a first occupation phase, a large extraction took place at the east of this area (36); the reason for this is unclear. A first fire layer of level 4 (37) fills up this extraction. After elevating the area, a clay layer serves a following subphase of level 4. The fire layer ending this subphase stretches over the whole profile up to the west (38) and is rich in charred grains; this layer covers a large part of the northern half of trench T7. To the west of the profile, this fire layer is covered by a level of sterile sand (39), identified as the level of sandy turves covering the northern part of trench T7, apparently a floor level for the workshops (cf. Plate XXXIV: 'sod level').

After the area had been elevated, a level of coarse sand with mortar and loam grit (41) covered the area, a surface level preserved in parts of Trench T7 and T2 and recognised as the first subphase of level 5. The occupation layer on a higher level is marked by two postholes, of which posthole (40) is the continuation of the S-N construction slot of structure Plate XXXV: i, and represents the second subphase of level 5. This final occupation is covered by a fire layer, characterised by charcoal layers, burnt daub and white chalk layers, the demolition remains of the final destruction of the fort.

## 5. Trench profile 6.1

Trench profile 6.1 is important as confirmation of the interpretation of the stratification of trench profile 6.2 (Plate XIII). It also yields additional information though. As will be clear on the surface plans, the sectioned construction slot (43) is part of a structure to be dated prior to the construction of the fort (Plate XXVIII: underneath b).

Again, features of level 1 are constructed immediately on the cultivated soil (see (27), (28), (29), (44)). As this profile is situated more to the east compared to profile 6.2, the base of the earthen rampart of level 1 is situated outside this trench profile. Clay layer (12) is presumably the western end of the solidification clay on top of the earthen rampart body of level 1. It forms the base for the earthen rampart of level 2, consisting of thick clay layers and sand levels. Right next to this



earthen rampart base, a feature was dug, filled in with the same clay layer. The small shift in the layers is probably due to post-depositional processes of compaction.

Prior to the construction of level 2, the area was elevated with a thick sandy level of 10 to 15 cm thickness. At the eastern end of the profile, this level changes into a homogeneous greenish clay level. Ditch (45) (identified as draining ditch Plate XXX: i) cuts into the levelling layers, indicating that the area was drained after it was elevated and after the earthen rampart was raised. The occupation level 2 is marked by postholes (46) and (47).

Prior to the construction of level 3, the area was again elevated, with mainly sandy and some clayish layers. The later earthen rampart of level 3 is here seen extending more to the west, consisting of a clay body and a sandy, humus brown cover. The occupation level 3 is marked by pit (48) and a hearth with sherd level (50), but as was clear in profile 6.2, level 3 represents different subphases.

For the construction of level 4 only the inner building area was elevated, but not as drastically as with the previous phases. As the occupation layers stretch further to the west, covering the base of the earthen rampart of level 3, thus forming a quasi-horizontal level, the earthen rampart seems to be situated locally further to the west. The sequence of hearths at the east of the profile, together with the simultaneous levelling up of the area demonstrates the phasing and the long duration of this occupation. A first sublevel ended with a massive fire, indicated by layer (38), containing a lot of burnt daub and charred grains. The area was then levelled with a level of sandy turves (39), on which further workshop activities took place (see hearths (53) and (54)). The stratigraphic relations with pit (49) have been disturbed by slumping due to the underlying pit (48).

After an elevation of the site, a thin mortar and daub grit layer, related to a stone level more to the east, marks the first phase of level 5. Construction slot (40) (Plate XXXV: i) represents a later subphase. On top of a clay level, a debris layer full of white and pink mortar and ceramic building material (42) relates to the demolition of the fort after its last abandonment.

## 6. Trench profile 1.1

Trench profile 1.1 is the most eastern trench profile of the southwestern excavation area (Plate XIV). It yields a more or less north-south section through the inner building area situated parallel to the defence system and therefore to the axes of the fort.

At the north side of the trench profile, a presumed road level consisting of 'fieldstones'<sup>1</sup> embedded in sand had cut away the cultivated soil over a distance of at least 4 m (57) (cf. Plate XXVIII: c). No relation in surface to defined level 1 features could be indicated, leaving the date of this road uncertain. This road may predate the fort or may belong to fort period 1. As a consequence of the deeper position of this road, this area was elevated with a thick sandy level prior to the construction of level 2 to cover the road. These sandy make-up layers, running over the whole length of the trench profile, are interrupted by a thin fire layer in the central part of the trench profile in which fragments of metal slag relate to metalworking (58).

Level 2 is characterised by a level of fragments of wall painting positioned horizontally and the covering level of clay containing a lot of plaster pieces. This greenish clay level, specked with plaster fragments, and occasionally even with larger parts of wall painting, was revealed over significant areas of the site. The discovery at the south side of the excavation area of wood imprints of timber framework in the clay upon which a fallen plaster wall was preserved facing up, proves that this clay represents the remains of the 'timber and daub' walls of which the level 2 building was constructed. One section of a construction slot or posthole (60) (Plate XXX: k) is situated in the prolongation of the northern slot of the double construction slot Plate XXX: v. No construction slot

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<sup>1</sup> This un-descriptive name is used locally for specific glauconite-rich sandstones.

was found in between the corner of the building as revealed in surface (Plate XXX) and this profile feature (60), leaving a space of c. 2 m, pointing to a possible portico.

Level 3 seems to be built here immediately on top of the debris of level 2. The postholes ((65), (66), and in between) of level 3 situated at the south side of the profile indicate that renovations took place. More to the north a hearth pit (63) and a hearth with a level of ceramic building material (68) (Plate XXXII: h) is related to this level. The area aligned by the postholes (65) and (67) (Plate XXXII: Unit IVb) suffered from severe fire (69), marking the end of this level.

Right on top of the demolition layer, (the remains of) a road stretching over almost the entire length of the profile (70) can be identified as level 4. Only at the northern end this road is preserved as a dense gravel level. More to the south, it shows as a layered, mainly sandy, level with some large blocks of Tournai limestone (cf. Plate XXXIV: east side).

At the northern end, this road is covered by a thick burnt sandy level (71), which occurs also in other trenches. This level continues further south over the entire profile, but as a dark brownish level (more clayish sand) with a fired top level (72). A robbed foundation trench of a stone wall (Tournai limestone and mortar) indicates a stone wall of level 5. This level 5 is furthermore only distinctively marked by a compacted demolition layer of mortar debris (white and pink) with fragments of Tournai limestone and ceramic building material (42).

## 7. Trench profile 2.7

A large part of the Roman levels had been cut away at the south side of trench profile 2.7 (Plate XV) by a large pit cut from at least the bottom part of the dark earth (74). This post-Roman 'disturbance' stretches out to trench profile 1.1 and is characterised by a stone (Tournai limestone) and mortar base filling. This pit is the robber trench of the bath house of level 5.

No features can be distinguished which are cut directly into the cultivated soil. At the north side of this trench profile, a thin fire layer with burnt daub grit (75), situated on top of a levelling level of sterile sand layers and clay, marks the end of a first identifiable occupation level.

Since this thin fire layer is covered by a sterile greenish clay layer for the construction of level 2, this fire level is likely to have occurred during the establishment of level 2 and may thus be linked with gully (79). In the middle section of the trench profile, on top of the cultivated soil, a clear elevation can be distinguished consisting of a layered level of sand with some thin clay layers prior to the construction of level 2. At the north side, prior to this level 2, the area is levelled with a greenish sterile clay level. This trench profile clearly sections the building complex of level 2 revealed in surface, as shown by the construction slots (76) and (77), and the postholes (81), (82) and (85). A similar but slightly sandier clay level (86), specked with charcoal, covers level 2. As pointed out for trench profile 1.1, this level most likely represents the fallen 'timber and daub' walls of the building of level 2, and thus the demolition level of this occupation. According to a local fire layer in the northern part of the profile underneath this layer, a fire took place prior to this demolition, characterised by a charcoal rich layer containing plaster fragments. In this northern part of the profile, the third level is implanted directly on top of this demolition level, while more to the south the area was elevated with heterogeneous sand and more clayish layers. Feature (87) testifies of the recuperation at level 3 of a construction beam from the construction slot of level 2. Construction slot (78) of level 3 follows the same path as the construction slot of the previous level (77). At the north side of the profile, the succession of level 3 and level 4 layers is somewhat unclear.

Level 4 is mainly represented here as fire layers. Fire layer (92) is characterised by an abundance of charcoal, burnt daub and some mortar gravel, a clear demolition layer following a fire, while layer (72) represents fired soil. No clear level 4 construction features are sectioned in this profile. Construction slot (93) can be related to level 5. The end of level 5 is marked by a fire layer at the

north of the trench profile and a thick demolition layer (42) consisting of debris of the bath house more to the north.

## 8. Trench profile 2.2

The post-Roman pit at the north side of trench profile 2.2 (Plate XVI) is the same as the one at the south of trench profile 6.2, cutting away most of the Roman stratification at this location.

The level 1 occupation took place directly on top of the cultivated soil, as is clear in the other trench profiles. The start of level 2, constructed after a levelling of the area with mainly sand layers and locally some sterile clay, is marked by the gullies (97) and (99). Shortly after these were filled in to serve as trace for construction slots (98) and (100). A level of horizontally positioned plaster fragments (101) represents the demolition of the building of level 2 and the end of this occupation. Prior to the implantation of level 3, the site was again elevated with sandy layers. Level 3 is marked by a posthole (103), pits (104) and (106) (with declined southern edge) and construction slot (102); local fire layers with daub burnt to red ((107) and further north) mark the destruction of this level. Prior to the implantation of level 4, the area was again levelled. Level 4 itself is equally characterised by several elevations. A shell layer consisting mainly of cockles (109) marks one of the first subphases, filling in also the base of pit (105). On top of this layer, the pit is filled in with a layer of sand sods, stretching further north and also in surface over a large part of the northern half of trench T7. The burnt soil (111) was revealed in a large part of the northern half of trench T7, T2 and T2bis and was also detected in the northern end of trench profile 1.1. The large pit of level 4 situated at the south side of trench profile 2.2 and which was also cut at the east side of trench profile 5.1, was clearly dug or re-dug while level 4 was already installed. Impressive fire layers, full of burnt daub, mark the last but one (layer 112) and the final phase of level 4 (layer 114). Immediately on top of this last demolition level, the fine gravel layer of sand, mortar and daub, revealed over a large part of trench T7 and T2, is interpreted as walking surface of level 5 (41). The end of this level 5 is again characterised by the demolition layer (42), visible at the southern end of the profile.

## 9. Trench profile 4.9

Trench profile 4.9, situated in the extension of trench profile 2.7, sections the area right on the southern defence system inside the earthen rampart (Plate XVII). The large feature of c. 5.0 m wide, filled in with sand, pre-dating the first fort and even pre-dating the cultivation of the soil, can be identified as a tree-fall. The organic and the silty layers in the top half are indicative for a temporary exposure of the pit. At the base the remains of roots of buried vegetation were reaching further outside the feature, possibly the roots of the tree originally standing here. The cultivated soil, more substantial on top of the pre-fort pit because of subsidence, did not show any level 1 feature at this location.

The sectioned postholes and/or construction slots which can be assigned to level 2 (132, 133, 134, 136) reveal two building phases. After a first phase, the area was raised with a greenish clay level (135). This level is closed off by a thin charcoal layer (136b) with here and there plaster fragments positioned horizontally (136a), clearly indicating the end of occupation level 2b. The clay level on top, covered by a dense level of *in situ* fallen plaster fragments, is the extension of the fallen down plaster wall of the building of level 2b, uncovered at the south of Trench 8 (cf. Plate XXX).

Level 3 is marked by posthole (139); this level could not be defined further to the south and appears to have been cleared away with the installation of level 4. Level 143 containing many larger stone fragments and interpreted as a robbed out road level, represents a first phase in this level 4. This level was covered by a level full of burnt material (144) which can be associated with a burnt surface uncovered at the south of trench T8 and assigned to a burnt workshop (Unit V) (Plate XXXIV: V).

The distinct level (145) represents the sectioned remains of a metalled road of level 5, also uncovered at the south of trench T8 and identified as the *intervallum* road along the southern earthen rampart (Plate XXXV: f). Layer (145a) shows the only *in situ* remains of the original gravel.

## 10. Profiles 7.1 and 7.2

Profiles 7.1 and 7.2 give more insight into the transition between the earthen rampart and the inner area (Plate XVIII). These profiles do not show construction features of level 1, from which it may be assumed that it occurs right on top of the cultivated soil. Underneath the earthen rampart of level 2 (12), the solidification clay layer on top of the earthen rampart level 1 (see trench profile 3.1 east) can be recognised. Prior to the construction of level 2, an elevation took place consisting of mainly sand layers containing some clay. Humus brown sandy layers on top of a sterile clay layer at the west side of profile 7.2 are the last remains of the earthen rampart of level 2, made of sandy turves (12). A ditch (116), starting right at the base of this earthen rampart, is related to this level 2 (cf. Plate XXIX: h). The alternated fill of sterile sand layers and dark silt layers indicates that this ditch lay open for a (short) while whereafter it was filled in prior to the occupation of this level. The direct stratigraphic relationship is lacking (disturbed by feature (122)), but it can be assumed from the straight vertical western edge of the ditch that it cuts the earthen rampart. The pit (117) which cuts into this ditch filling, is also related to level 2. A thin fire layer (115) marks the end of this occupation. Prior to the level 3 occupation, the area was again levelled, now with more heterogeneous layers, containing some debris. An extraction (120) took place, which was rapidly filled in, with a horizontally layered level, sand to clayish sand, forming also the earthen rampart body (24). Since the extraction cuts into pit (118) of the same level 3, this earthwork probably reflects renovation works to the earthen rampart. The base of the earthen rampart is covered by sloping burnt layers (121).

Prior to level 4, a levelling of the site was conducted where it was necessary, as can be concluded by the differences in profiles 7.1 and 7.2. On profile 7.1, an elevation took place at the base of the earthen rampart; on profile 7.2 a levelling of the whole area is clear. A first occupation level is marked by a heavy fire (124). The last phase of level 4 is characterised by layers of sandy turves (110). This level changes to the west into a thick level of heavily burnt soil (111), a level uncovered on a large part in the northern half of trench T7, T2 and T2bis and also detected in the north end of trench profiles 2.2 and 1.1 (see also Chapter II, Section II.4.6: Fig. 64). Right on top of this level, the gravel layer of level 5 (41) was laid over, running further west as a sterile sand elevation level which served the construction of the earthen rampart and the levelling of the sunken area due to ditch level 2. Construction slot (129) and posthole (130) are features of level 5B (cf. Plate XXXVI: j, respectively the construction slot at the west side and the posthole (of the first phase of the as stable identified construction?) at the northwestern side). Since they are cut from into the layer on top of layer (126), layer (128) – only slightly different in color from the 'dark earth' – appears to belong to level 5.



APPENDIX 5 - The hearths uncovered at the south-west corner site, fort level  
4

HEARTH N°	ILL.	FEATURE N°(when different levels: a: uppermost)	hearth level (when different levels: 1=uppermost)	location	composition of hearth level	top layer preserved	basis	specifics
1a	III.	OS 7911a	hearth level 1	UNIT I	pottery sherds	burnt crusty clay layer on top, partly preserved	bed of greenish clay level (burnt to crusty layer underneath pottery sherds)	
1b	III.	OS 7911b	hearth level 2	UNIT I	pottery sherds		bed of greenish clay level (burnt to crusty layer underneath pottery sherds)	
1c	III.	OS 7911c	hearth level 3	UNIT I	pottery sherds		bed of greenish clay level (burnt to crusty layer underneath pottery sherds)	
1d	III.	OS 7911d	hearth level 4	UNIT I	pottery sherds		bed of greenish clay level (burnt to crusty layer underneath pottery sherds)	
1e	III.	OS 7911e	hearth level 5	UNIT I	ceramic building material + some Tourmal limestone fragments		bed of greenish clay level (burnt to crusty layer underneath pottery sherds)	the pottery sherds cover the complete clay bed
1f	III.	OS 7911f	hearth level 6	UNIT I	pottery sherds		bed of greenish clay level (burnt to crusty layer underneath pottery sherds)	
1g	III.	OS 7911g	hearth level 7	UNIT I	ceramic building material: 3 square lateres		bed of greenish clay level (burnt to crusty layer underneath pottery sherds)	
2a	III.	OS 7915	hearth level 1	UNIT I	pottery sherds		bed of burnt clay level	
2b	III.	OS 7915	hearth level 2	UNIT I	ceramic building material Tourmal limestone blocks, mortar, some boulders and some ceramic building fragments	burnt crusty clay layer on top	bed of greenish clay level, burnt underneath pottery sherds	
3	III.	OS 7913	hearth? or a workbench?	UNIT I			underneath ceramic building material soil underneath burnt to black, but not absolutely certain if this layer is related to the stones	
4	III.	OS 7914	hearth or furnace remains?	UNIT I	ceramic building material	burnt crusty clay layer on top, partly preserved	bed of greenish clay level (burnt to crusty layer underneath CBM)	destroyed; density of CBM spread over large area
5	III.	OS 7928		UNIT I	ceramic building material + a few Tourmal limestone fragments		bed of greenish and burnt clay	
6	III.	OS 70946		UNIT II	ceramic building material + pottery sherds		bed of greenish clay level, centrally burnt	only three ceramic building fragments <i>in situ</i> preserved; located underneath hearths OS 7927 and OS 70915
7	III.	OS 70915		UNIT II	pottery sherds	burnt crusty clay layer on top, completely preserved	bed of burnt clay level	only small area of sherd level preserved; underneath hearth OS 7991
8	III.	OS 7991		UNIT II	pottery sherds		bed of greenish clay level, burnt underneath pottery sherds	
9a	III.	OS 7927	hearth level 1	UNIT II	ceramic building material + some pottery sherds		bed of greenish clay level, burnt underneath ceramic building material and pottery sherds	with border of fragments of ceramic building material on slightly lower level with border of stone and mortar blocks (recycled building material) on a slightly lower level
9b	III.	OS 7927	hearth level 2	UNIT II	pottery sherds	burnt crusty clay layer on top, completely preserved	bed of greenish clay level, not very burnt	
9c	III.	OS 7927	hearth level 3	UNIT II	ceramic building material + some pottery sherds		CBM and pottery sherds set in greenish clay level on top of bed of large blocks of stone and mortar (recycled building material) and a single animal bone	

HEARTH N°	ILL.	FEATURE N° (when different levels: a: uppermost)	hearth level (when different levels: 1=uppermost)	location	composition of hearth level	top layer preserved	basis	specifics
10	ill.	OS 7996		UNIT II	ceramic building material + Tourmal limestone fragments		bed of burnt clay level	remains of hearth, disturbed; with concentration of shell fragments which may refer to a function of this hearth in the roasting of shells to make lime (the same possibility is proposed for a cluster of hearths located in the settlement c. 400 m to the south-east of the east gate of the Aardenburg fort: see de Visser 2001, 213-216)
11	ill.	OS 7990		UNIT II	pottery sherds		bed of greenish clay level, partly burnt underneath sherd level	sherd level not completely preserved
12	ill.	OS 7992		UNIT II	ceramic building material	burnt crusty clay layer on top, partly preserved	bed of greenish clay level, burnt underneath CBM level	
13	not ill.	OS 71895		UNIT II	pottery sherds			only small area of sherd level preserved
14	not ill.	OS 7720-7721		UNIT II	undetermined, no hearth level preserved		bed of burnt clay level	only bed of burnt clay preserved; no hearth level left
15	ill.	OS 7989		UNIT II	pottery sherds	burnt crusty clay layer on top	bed of greenish clay level, burnt underneath sherd level	same level as oven OS 7905; on a higher level than hearth OS 7988
16a	ill.	OS 7988	hearth level 1	UNIT II	pottery sherds	burnt crusty clay layer on top	bed of greenish clay level, burnt underneath sherd level	
16b	ill.	OS 7988	hearth level 2	UNIT II	pottery sherds	burnt crusty clay layer on top	bed of greenish clay level, burnt underneath original hearth level	only some pottery sherds preserved surrounding hard iron-rich clay rim (oxidized)
16c	ill.	OS 7988 (72202)	hearth level 3	UNIT II	ceramic building material	burnt clay layer on top, not very hard (short use?)	bed of greenish clay level, burnt underneath CBM level	
17	not ill.	OS 70938		UNIT II	pottery sherds		bed of greenish clay level, centrally burnt	only remains of hearth preserved destroyed; only density of CBM; the burnt daub pieces may point to an oven rather than a hearth
18	not ill.	OS 7932	hearth or furnace remains?	UNIT II	ceramic building material		bed of burnt clay level	
19	ill.	OS 71855		UNIT II	ceramic building material			
20a	ill.	OS 7973	hearth level 1		ceramic building material		bed of greenish clay level, burnt underneath and around CBM level	
20b	ill.	OS 7973	hearth level 2		Tourmal limestone fragments + some ceramic building material		bed of greenish clay level, burnt underneath CBM and stone level	
21	ill.	OS 7953			ceramic building material: only one tubulus side		bed of burnt clay level	very small hearth on the same location of hearth OS 7973 but clearly a level higher
22	not ill.	OS 82735		UNIT V	undetermined		bed of burnt clay level	only some small pieces of CBM preserved
23	not ill.	OS 82210-12		UNIT V	pottery sherds		bed of burnt clay level	only some concentrations of pottery sherds on horizontal level on top of clay level preserved

HEARTH N°	ILL.	FEATURE N° (when different levels: a: uppermost)	hearth level (when different levels 1=uppermost)	location	composition of hearth level	top layer preserved	basis	specifics
24	iii.	OS 80799		UNIT V	pottery sherds and ceramic building material	burnt crusty clay layer on top	bed of burnt clay level	
25	iii.	OS 80915		UNIT V	pottery sherds	burnt crusty clay layer on top	bed of burnt clay level	
26	iii.	OS 82605	hearth remains	UNIT V	undetermined			remains of hearth, disturbed: mixture of burnt clay, crust fragments, some sherds and CBM fragments
27a&b	iii.	OS 82584A/B	hearth level 1&2	UNIT VI	two levels of pottery sherds, separated by thin clay layer	burnt crusty clay layer on top	bed of burnt clay level	
28	not ill.	OS 80456		UNIT VII	undetermined (only layer of clay fragments, bunt to red, preserved)		bed of greenish clay, centrally burnt	remains of hearth; on top of filled-in pit of fort level 3 (OS 80925)
29	iii.	OS 80560		UNIT VII	pottery sherds		bed of completely burnt clay	on top of hearth 30; the edge is situated underneath the west wall of the <i>praeformium</i> of the bath house fort level 5
30	iii.	OS 8997		UNIT VII	ceramic building material		bed of completely burnt clay	only partly preserved; situated partly underneath west wall of <i>praeformium</i> of bath house fort level 5
31	iii.	OS 80875-6 / 81507		UNIT VII	pottery sherds some large fragments of ceramic building material ( <i>tegulae</i> )	burnt crusty clay layer on top	bed of greenish clay level, completely burnt to dark brown to orange underneath and around the pottery sherds	on top of hearth 32a
32a	iii.	OS 80874	hearth level 1	UNIT VII			bed of burnt sand	only partly preserved
32b	iii.	OS 80409-626-632	hearth level 2	UNIT VII	pottery sherds (fragmented tableware flagon)	burnt crusty clay layer on top	bed of greenish clay level, completely burnt to dark brown to orange underneath and around the pottery sherds	the covering crust layer is delimited by an iron-rich clay rim (oxidized), which may indicate that originally there was an upstanding rim or a dome
33	not ill.	OS 8980*		UNIT VII	pottery sherds			on top of filled-in pit; only partly preserved
34	not ill.	OS 8948(7)			undetermined, no hearth level preserved		bed of burnt clay	remains of hearth, on top of filled-in pit; only thick burnt clay level preserved
35	not ill.	OS 1.3 (227)			only burnt crust layer			remains of hearth; on top of filled-in pit
36	not ill.	OS 80367b			undetermined	fragments of burnt crust layer	burnt clay level on top of burnt clay level, partly preserved	remains of hearth?
37	iii.	OS 81242			ceramic building material	burnt crusty clay layer partly preserved	preserved	small part preserved
38a	iii.	OS 8923/(8916) (80192)	hearth level 1	UNIT IX	pottery sherds			on top of hearth 38b
38b	iii.	OS 8942 (80618/19/20)	hearth level 2	UNIT IX	pottery sherds		bed of greenish clay level, centrally burnt (underneath original sherd level)	only central part of sherd level preserved

Table 3: The hearth structures uncovered at the south-west corner site and attributed to fort period 4. Description and characteristics.

## APPENDIX 6 - Oudenburg Graveyard A, overview of the burials

Table 4: Overview of the 216 graves of Graveyard A. Burial characteristics and general content. Based on the data from Mertens and Van Impe (1971). The burial numbers which are underlined appear in Table 5. (see following pages)

graves graveyard	disturbed grave	no 'grave good'	coins	crossbow brooch	bracelet	samian vessel	other ceramic vessel	glass vessel	part of belt set / buckle	'weapon'?	other	physical-anthropological data (Deisaux 1973)	age	gender conclusion
1				1		1	1		X		iron knife	adult	< 25 years	male
2	X			1							iron knife	male	40-50 years	male
3	X						3	1	X					male
4	X				2									female
5	X	X												?
6	X	X												?
7	X	X			1									female
8	X	X										adult	>25 years	male/female
9	X	X										adult	18-20 years	male/female
10	X	X			3							child	c. 4 years	child female
11	X	X										adult	c. 40 years	male/female
12	X	X												?
13							1					adult	c. 50 years	male/female
14			1	1			1	1	X		iron knife; bone comb			male
15	X					1	1	1			half of cylindrical piece: bronze bead?			?
16		X							X					female?
17	X	X										child	4-5 years	child
18	X	X							X			adult		male
19	X	X		1					X			adult		male
20				1							iron rod			?
21	X						1	2						?
22							1	1						?
23						1	1	1						?
24											iron rod			?
25		X										child		child
26	X?			1										male
27				1			2		X		iron pin; iron knife	male	c. 30 years	male
28							1	2				adolescent	16 years	adolescent
29														?
30							1				bronze (finger?) ring	male?	35 years	male/female
31	X						1	1			dice and counters; one or two chickens			?
32							1	1						?
33	X						1	1						?
34	X			1		1		1			iron knife	adult	c. 30 years	male
35	X					1	1	1				adult	40-45 years	male/female
36		X										adolescent-young adult		male/female
37				1				1	X			adult	c. 20 years	male
38		X										adult	c. 35 years	male/female
39		X										young adult	c. 25 years	male/female
40	X	X												?
41				1							cheek bone cattle on belly	adult	40-45 years	male
42	X			1								adolescent	18 years	adolescent male
43	X					1	1	1				adult	c. 45 years	male/female
44						1	1	2	X		bone counter horse bone underneath skull	adolescent + young adult	15-18 years and c. 25 years	male/female
45-46			2											?
47		X												?
48	X	X										adult		male
49				1			1	1			spindle whorl			female
50	X							1						?
51	X	X					1							?
52														?
53											iron knife			male
54	X	X												male/female
55	X					1	1	1						?
56		X										adult	25-30 years	male/female

graves graveyard A	disturbed grave	no 'grave good'	coins	crossbow brooch	bracelet	samian vessel	other ceramic vessel	glass vessel	part of belt set / buckle	'weapon'?	other	physical- anthropological data (Deisaux 1973)	age	gender conclusion
57				1			1	2	X		pewter plate; bone comb iron knife	adult	20-25 years	male
58						1		3	X					?
59				1					X					male
60							1	1				young adult	c. 25 years	male/female
61							1					child	c. 4 years	child
62		X					3	2						?
63														?
64			1			2	2	1			bronze tweezers; bronze ring			
65	X	X												?
66	X	X												?
67					3		1	1	X		silver ring; necklace with glass beads and golden pendant; tutulus brooch; small chest; four bronze hair pins	child	<13 years	child female
68											iron knife			male
69						1	1	1			pewter plate	young adult	c. 20 years	male/female
70						1	2				bone comb; bronze tweezers; iron pin; bronze hook or needle			?
71								1			iron knife	young adult	20-25 years	male/female
72				1			2		X			adult	40-45 years	male
73		X										male	c. 35 years	male
74		X										adolescent	18-20 years	adolescent
75								1				child	3 years	child
76			88 coins (purse)								dog burial; iron steel; two silex pieces and touchstone			
77	X	X							X			young adult	c. 20 years	male
78					3		1				cheek bone of goat or sheep	adolescent	18-20 years	adolescent female
79											three beads (two golden, one of glass), remains of necklace	young adult		female
80		X										male	c. 35 years	male
81		X										young adult	20-25 years	male/female
82							1				shoulder blade of horse underneath skull			
83							1				touchstone; iron knife	child	3-4 years	child
84				1			1	1			adolescent-young adult	adolescent-young adult	16 years	adolescent
85		X					2				bone comb	adolescent-young adult		male/female
86	X	X												?
87	X	X						1			iron knife			male
88											two silver tutulus brooches; bronze disc brooch;			
89		X									Armbrust brooch; Stützarm brooch;			
90	X	X									silver finger ring; bronze needle; bone comb	young adult	25 years	female
91		X										young adult	20 years	male/female
		X										adult	35-40 years	male/female

graves graveyard A	disturbed grave	no 'grave good'	coins	crossbow brooch	bracelet	samian vessel	other ceramic vessel	glass vessel	part of belt set / buckle	'weapon'?	other	physical-anthropological data (Beisauz 1973)	age	gender conclusion
93			1			1	2	3			parts of three pig(s), goose, three chickens	adult	c. 30 years	male/female
94								1				adult	45-55 years	male/female
95		X										adult	30-35 years	male/female
96		X									bones of pig and sheep	male	30-35 years	male
97												adult		male/female
98		X				1	3	1			bones of cock; iron rod	adult	40-45 years	male/female
99					3		1	2			pewter plate; bones of chicken	adolescent-young adult		female
100								2	X		shoulder blade of cattle	adult		male/female
101							1							male/female
102			1 (Early Empire)											male/female
103				1					X			young adult	c. 20 years	male
104			1 + 3	1			2	1	X		one silex; iron knife, purse content: six pieces of silex, one iron steel, one bronze needle, small bronze knife, bronze ring, iron nails, three coins			male
105											one silex			male?
106		X												?
107	X	X												?
108		X							X		iron steel	young adult	20-25 years	?
109		X										adult	30-35 years	male
110		X										male?	25 years	male?
111				1					X		iron scissors, iron knife	adult	30 years?	male
112											spindle whorl, bones of pig and cattle			
113		X					2					adult	c. 40 years	female
114	X				1 (armlet)				X			adult	35-40 years	male/female
115				1							pewter plate; bones of pigs; oyster shell	young adult	22-25 years	male
116			1	1		1	1				bronze needle; bronze sheet	adult	40-45 years	male
117	X													
118		X										young adult	22-25 years	female?
119	X	X									one silex	adult	25-30 years	male/female
120		X										child	12-13 years	?
121	X	X										adult	25-30 years	child
122								1 (part of grave?)	X		iron knife, iron scissors, bronze sheet, skull fragment of pig			male/female
123							2				bead	male adult		male
124				1								adult	c. 35 years	female
125		X										male adult	40-45 years	male
126		X										male adult	c. 35 years	male
127		X												?
128		X					2	1						?



graves graveyard A	disturbed grave	no 'grave good'	coins	crossbow brooch	bracelet	samian vessel	other ceramic vessel	glass vessel	part of belt set / buckle	'weapon'?	other	physical- anthropological data (Beisauz 1973)	age	gender conclusion
129				1					X	iron lance- head	iron knife; undefined bone object	young adult	20-25 years	male
130		X				1	3	2				male adult	35-40 years	male
131									X			adult	40-45 years	male/female
132				1							bronze ring	adult		male
133		X										adult	c. 35 years	male/female
134												adult	40-45 years	male/female
135		X				1	1					adolescent-young adult	c. 20 years	male/female
136														?
137			1 (undet.)									adult	30-35 years	male/female
138		X		1			3		X		bones of pig and chicken	male adult	25-35 years	male
139		X										child		?
140		X											12-14 years	child
141			5				3	1		six iron arrow heads	half of skull of pig, bones of chicken iron knife, half of skull of pig and chicken bone			?
142											glass counter, iron rod			male
143						2	1	1			bones of pig	adolescent-young adult		male/female
144														?
145	X	X												?
146									X		bones of pig, cheek bone of goat or sheep, antler of roe-buck used as tool	child	14 years	child
147		X										young adult	20-25 years	male/female
148			1									young adult	20-26 years	male/female
149									X			adolescent-young adult		male/female
150							1					female? adult	c. 20 years c. 25 years	female?
151						1	1				bones of chicken, half of skull of pig	adult	35-50 years	male/female
152				1										male
153		X										male? adult	25-30 years	male/female
154							1					child	c. 4 years	child
155		X												?
156		X							X			adult		male/female
157		X										young adult	c. 25 years	male/female
158		X									bone hair pin	female? adult	c. 25 years	female?
159											bones of pig and of chicken			female
160						2		1				adult	c. 65 years	?
161									X		iron knife, bronze bell	adult		male/female
162							1					young adult	20-25 years	male
163		X												?
164		X							X			adult	25-30 years	male/female
165		X		1								male? adult	25-30 years	male
166		X										adolescent	16-18 years	male/female
167		X										male? adult		male
168		X					1				iron knife	young adult	>40 years	male/female
169				1									20-25 years	male
170	X					1						male? adult	2-35 years	male/female
171				1					X		iron knife	male? adult	c. 25 years	male
172									X			adolescent-young adult		male
173		X										adult	18-25 years	male/female
174		X												?

graves graveyard	disturbed grave	no 'grave good'	coins	crossbow brooch	bracelet	samian vessel	other ceramic vessel	glass vessel	part of belt set / buckle	'weapon'?	other	physical-anthropological data (Deisaux 1973)	age	gender conclusion
175		X												?
176						1	1				golden ring, two silver (hair) pins, five glass beads		c. 30 years	male/female
177						1	1					female adult		female
178						3	3					female young adult	20-25 years	female
179						3	3					female young adult	c. 20 years	female
180		X				1	1		X		bones of goose			?
181		X										male adult	30-40 years	male
182		X										male young adult	20-25 years	male
183		X										male young adult	c. 20 years	male
184		X				1		2						?
185		X					2					child	c. 6 years	child
186		X					1					child	c. 5-6 years	child
187		X					1		X		iron knife	male adult	40-45 years	male
188		X												?
189												male adult	c. 25 years	male
190														
191											bronze finger ring, bone finger ring, 24 beads (necklace)			
192		X	1		2							female adult	20-25 years	female
193		X										male adult	c. 40 years	male
194												male adult	>50 years	male
195	X	X			2	2	2				20 glass beads (necklace)	female adult	25-30 years	female
196														?
197	X	X							X		bronze torques, glass bead from necklace			female
198	X	X												?
199					1		3	1			silver hair pin	child	5-6 years	child
200							2					adolescent-young adult	max. 20 years	female
201							1	1				female child-very young woman		child-adolescent
202	X	X				1	1				bones of chicken	male young adult	c. 20 years	female
203												male adult	50-60 years	male
204	X	X				2		1				female adolescent-young adult + female adult	>18 years + >50 years	male
205		X										female adult	c. 50 years	2x female
206							1					female young adult	max. 25 years	male
207				1							bones of two pigs end of a chicken	male young adult	max. 20 years	female
208		X										male adult	60-80 years	male
209												child	c. 12 years	child
210											iron knife, undetermined metal object			
211	X	X							X			male adult	c. 25 years	male
212	X											male adult	c. 50 years	male
213							2				bronze wire fragment, bones of pig, cattle and chicken			?
214	X (grave?)	X										male adult	c. 40 years	male
215	X	X										older child		?
216	X				3							female young adult	c. 20 years	child
														female

GRAVES WITH 'CLOSELY' DATABASE FINDS AND 'WEAPON' GRAVEYARD A	(CLOSING) COIN	DATE	BROOCHES	DATE	BUCKLES AND BELT FITTINGS	DATE AD	ARGONNE ROLLER-STAMPED SIGILLATA / SPECIFICALLY DATABLE NORTH-GAULISH BEAKER	DATE	DATING RANGE GRAVE ASSEMBLAGES ( TPO )	~ FORT LEVEL?
grave 001			crossbow brooch Keller-Prüttel 3a-4c / Swift 3/4d	AD 330-410	buckle and plate Sommer (1984) Serie 1 Form A Typ a	310 - 350/360 (Gürtelgruppe 1 Sommer 1984)			AD 330-360	5A
grave 002			crossbow brooch Keller-Prüttel 3b-4a / Swift 3/4b	AD 350-410	chip-coned belt pommone Böhme Typ B / Sommer (1984) Serie 1 Form E Typ a with animal-ornamented buckle (see Sommer 1984, 31); lanceol shaped strap-end Böhme (1974) Typ 1 / archborn shaped strap-end Sommer (1984) Form B Typ c Var. 1b	according to Böhme (1974/1987) c. 390-430/435 (Fundgruppe A), based on the belt pommone according to Sommer (1984) Gürtelgruppe 2: 364/370 - 407, based on buckle plate and strap-ends			AD 350-410	5
grave 003	Münzstich, Trier (Lalorenrd 1906, 131: 9)								AD 364/370-407	5B
grave 014		AD 390-393							AD 350-395	5A
grave 015									AD 350-400	367
grave 016										
grave 019									AD 364/370-407	5B
grave 020									AD 364/370-407	5B
grave 026									AD 330-410	5
grave 027									AD 330-410	5
grave 032									AD 364/370-407	5B
grave 033									+ AD 375	5B
grave 034									+ AD 320	5
grave 037									AD 330-410	5
grave 041									AD 364/370-407	5B
grave 042									AD 300-365	5(A7)
grave 45/46		AD 364-375							AD 330-410	5
grave 049									AD 390-460	5B
grave 057									AD 350-410	5A7
grave 058									AD 375-475	5B
grave 059									AD 364-375 (intersected by grave 33; grave 45/46 probably dates from early in the second phase)	5B
grave 061									AD 310-360	5A7
grave 064		AD 367-383							+ AD 375	5B
grave 067									AD 390-430/435	5B
grave 068									AD 310-350/360	5A7
grave 070									AD 325-375	5
grave 072									AD 375-410	5B

Graves with 'closely' datable finds and 'weapon' GRAVEYARD A	'WEAPON'	(CLOSING) COIN	DATE	BROOCHES	DATE	BUCKLES AND BELT FITTINGS	DATE AD	ARCONE ROLLER-STAMPED SIGILLATA / SPECIFICALLY DATABLE NORTH-GAULISH BEAKER	DATE	DATING RANGE GRAVE ASSEMBLAGES ( TPQ )	FORT LEVEL?
grave 076		Theodosius I, Aikes, Fei renpo reparatio (Lallemand 1966, 138-83; van Heesch 1998, 278)	AD 379	Crossbow brooch Keller-Prüttel 4b / Swift 3/4c	AD 350-410	buckle Sommer (1984) Sorte 1 Form C Typ e 'Enzebügel mit vier Teilgipfen'	364/370-407 (Gürtelgruppe 2 Sommer 1984)			+ AD 379	5B
grave 083				Stiefelriem mit T-förmiger Gelfeder (van Heesch 1998, 278) mit T-förmiger Gelfeder (van Heesch 1998, 278) C: T-förmiger Typ Oudenburg; early composed disc-brooch (all after Böhme 1974)	c. AD 390-410 (van Heesch 1998, 278) 1024/1087; the early composed disc-brooch bowmaker is dated by Böhme 1987 in Fundgruppe B (430/435-465/470)					AD 390-410	5
grave 088		Constantinus I, Aikes, Gl'za Exercitus two standards (Lallemand 1966, 131-6)	AD 330-335							c. AD 430?	5B
grave 093										+ AD 330	5A?
grave 099											
grave 100										AD 320+ + AD 375	5B
grave 101						buckle and plate Sommer (1984) Sorte 1 Form C Typ d Var. 1-4	364/370-407 (Gürtelgruppe 2 Sommer 1984)			AD 364/370-407	5B
grave 103				Crossbow brooch Keller-Prüttel 3a / Swift 3/4a	AD 325-355	buckle and plate Sommer (1984) Sorte 1 Form C Typ a	310-350/360 (Gürtelgruppe 1 Sommer 1984)			AD 325-355	5A?
grave 104		Valentinianus II, Aikes, Gl'za Exercitus (Lallemand 1966, 132-4)	AD 388-392	Crossbow brooch Keller-Prüttel 3b-4a / Swift 3/4b		animal-ornamented buckle Form Hermes-Löstedt (Böhme 1974) / Sommer (1984) Sorte 1 Form C Typ f Var. 1a-b, strap-end (Gürtelgruppe 1 Sommer 1984) strap-end Sommer (1984) Form D	364/370-407 (Gürtelgruppe 2 Sommer 1984)			certainly + AD 388, possibly AD 430+?	5B
grave 109										AD 364/370-407	5B
grave 111				Crossbow brooch Keller-Prüttel 5 / Swift 6a	AD 390-460	animal-ornamented buckle Typ Cuij-Tongeren (Böhme 1984) / Sommer (1984) Sorte 1 Form C Typ f Var. 1a-b, strap-end Sommer (1984) Form D	310-350/360 (Gürtelgruppe 1 Sommer 1984)			c. AD 430?	5B
grave 114				Crossbow brooch Keller-Prüttel 3b / Swift 3/4b	AD 350-410	buckle plate Sommer (1984) Sorte 1 Form A				AD 390-360	5A?
grave 115		Constantin, T'var; Fel'tenoprozav' o' (Lallemand 1966, 131: 8)	337-350	Crossbow brooch Keller-Prüttel 3b / Swift 3/4b	AD 350-410	Schnalle mit Antriebsbeschlag und Steckschse (Böhme 1974, 65), according to Mertens and Van Impa 1971, 31 type Chadiw'ek-Hawkers and Dunning (1962; 1964) 1A, which is the equivalent of Sommer (1984) Sorte 2 Form D; however this buckle shows very close resemblances with the examples listed by Sommer (1984) for Sorte 2 Form A Typ b; see Taf. 15: 3-4				c. AD 350	5A?
grave 122											
grave 124				Crossbow brooch Keller-Prüttel 6 / Swift 6a	AD 390-460					AD 390-460	5A

Graves with "closely" datable finds and "weapon" GRAVEYARD A	"WEAPON"	(CLOSING) COIN	DATE	BROOCHES	DATE	BUCKLES AND BELT FITTINGS	DATE AD	ARGONNE ROLLER-STAMPED SIGILLATA / SPECIFICALLY DATABLE NORTH-GAULISH BEAKER	DATE	DATING RANGE GRAVE ASSEMBLAGES ( TPQ )	~ FORT LEVEL?
grave 129	spear			crossslaw brooch Keller-Pfittel 4b / Swift 3/4b	AD 350-410	punched decorated belt gamlans (Anzeizerte Gornburon Böhm 1974); buckle and plate Sommer (1984) Sorte 1 Form C Typ f Var. 3; strap-end Sommer (1984) Form C Typ d buckle and plate Sommer (1984) Sorte 1 Form A Typ a; amphiox shaped strap-end Sommer (1984) Form b Typ c Var. 2b	310-350/360 (Gürtelgruppe 1 Sommer 1984)			AD 7 400/430-465/470	5B
grave 132				crossslaw brooch Keller-Pfittel 3c-4c / Swift 3/4d	AD 330-410			Chenet 320 with roller stamp UC-308; beaker Braket BA 2	AD 350-400 / + 375	AD 330-360	5A
grave 135				crossslaw brooch Keller-Pfittel 3 / Swift 2b	AD 350-410					AD 375-400	5B
grave 138		Constance, Aides (Lallemand 1906, 133; S; van Hoesch 1968, 278)								AD 350-360	5A
grave 141											5B
grave 142	six arrowheads		c. AD 336			clip-carved belt piece compatible to belt gamlans Bourne 1074 Typ a / Sommer (1984) Sorte 1 Form E	c. 390-430/435 (Belton 1987 Fundgruppe B)	Chenet 320 with roller stamp UC-137	AD 325-375	+ AD 375	5
grave 144										AD 325-375	5
grave 146		Constitution II or Constance (Lallemand 1906, 131.; 7)								AD 300-430/435	5B
grave 148			AD 337-361							AD 337-361	5A7
grave 149										AD 310-407	5
grave 151				crossslaw brooch Keller-Pfittel 3 / Swift 2b	AD 350-415				+ AD 320	AD 320+	5
grave 152				crossslaw brooch Keller-Pfittel 2b / Swift 2b	AD 300-365					AD 350-415	5(B)
grave 162				crossslaw brooch Keller-Pfittel 4c-5 / Swift 3/4c	AD 330-410					+ AD 375	5B
grave 165										AD 300-365	5A7
grave 169										AD 330-410	5
grave 170									AD 350-400	AD 350-400	5
grave 171										AD 310-350/360	5A
grave 172											
grave 176				crossslaw brooch Keller-Pfittel 3b-4 / Swift 2/4b	AD 350-410	buckle and plate Chadwick Hawkes and Dunning (1982; 1984) Type IA / Sommer (1984) Sorte 1 Form A Typ c Var. 2; heart shaped strap-end animal ornament buckle Form H (Sommer 1984) Form B buckle and plate Sommer (1984) Sorte 1 Form C Typ d Var. 1-4; buckle and plate Sommer (1984) Sorte 1 Form C Typ a Var. 5	310-350/360 (Gürtelgruppe 1 Sommer 1984) (however, Chadwick Hawkes (1982/1984) dates the buckle later) as well as Sommer (1987 c. 420/435-465/470 (Fundgruppe B) based on the buckle Form Harnox-Loasbe; according to Sommer 1984: 164/276-407 (Gürtelgruppe 2) based on both buckles	Chenet 320 with roller stamp UC-117	AD 7 430/435-465/470 + AD 375	AD 310-407	5B
grave 180											5
grave 185										AD 320+	5
grave 188				crossslaw brooch Keller-Pfittel 2b / Swift 3/4b	AD 350-410						
grave 190				crossslaw brooch Keller-Pfittel 2b-3b / Swift 3/4b	AD 350-410					AD 350-360	5A
grave 191		copy from after AD 388	+ AD 388							AD 350-410	5
grave 199		copy from Roma	AD 330-340							AD 388+	5B
grave 201		Constitution II, Gord Eboracrus one standard	AD 337-341							AD 330-340	5A
grave 206				crossslaw brooch Keller-Pfittel 3c-4c / Swift 2	AD 300-365					AD 330-340	5A
										+ AD 375	5B
										AD 300-365	5A7

cf. Sommer (1984) buckles and plates	Sorte 1 Form A Typ a	oval or kidney shaped plate and round, D-shaped or oval buckle				
	Sorte 1 Form A Typ c Var. 2	oval or kidney shaped plate and animal-head buckle, with two to the middle biting dolphins	wide distribution in <i>Galla, Britannia</i> and along the Rhine and Danube lines; large cluster in the west of Belgica, along the Rhine lines and in <i>Pannonia</i>	310 - 350/360 for Rhine region - North Gaul		Gürtelgruppe 1
	Sorte 1 Form C Typ a	rectangular plate and D-shaped buckle	mainly found in <i>Pannonia</i> and west of the Rhine	310 - 350/360 for Rhine region - North Gaul		Gürtelgruppe 1
	Sorte 1 Form C Typ a Var. 5	rectangular plate and D-shaped buckle, plate with punched decoration				
	Sorte 1 Form C Typ b	rectangular plate and saddle shaped or oval buckle	roughly same distribution as Sorte 1 Form A; no finds in <i>Germania Libera</i>	310 - 350/360 for Rhine region - North Gaul		Gürtelgruppe 1
	Sorte 1 Form C Typ d Var. 1-4	rectangular plate and two animal heads confronted at the centre of the frame, with lion heads, dolphin heads or dolphin-like animals			364/370 - 407 for Rhine region - North Gaul	Gürtelgruppe 2
	Sorte 1 Form C Typ e	rectangular plate and buckle with four animal heads; two confronted at the centre of the frame and two where the frame meets the plate rectangular plate and two animal heads where the frame meets the plate Variation 1: with curved frame, wedge shaped in cross-section or with a pronounced lip; the animal heads are quite flat; 1a: the plate is decorated with a central field surrounded by a decorative band; the field contains niello figures, punched circles, S shaped, star or flower motifs; 1b: the plate has a decorative border enclosing two fields with the same type of decoration as 1a	mainly found west of the Rhine found west of the Rhine, along lines and further west, scattered in the two provinces, not in Britain		364/370 - 407 364/370 - 407 for Rhine region - North Gaul	Gürtelgruppe 2 Gürtelgruppe 2
	Sorte 1 Form C Typ f Var. 4a	rectangular plate and buckle with two animal heads where the frame meets the plate; with two fields with star shaped chip-carved ornament or with simple punched circle or cross patterns	found mainly along the Rhine lines with a few finds further west		364/370 - 407 for Rhine region - North Gaul	Gürtelgruppe 2
	Sorte 1 Form C Typ f Var. 5	rectangular plate and buckle with two animal heads where the frame meets the plate; with very large buckle	found west of the Rhine beyond the Meuse in a more restricted area of <i>Germania Inferior</i> and in a small area along the Rhine in <i>Germania Superior</i> , not in Britain		400-450	Gürtelgruppe 3
	Sorte 1 Form E Typ a	rectangular plate with two rectangular fields on the plate with ordered star, bendii, and pointed oval motifs, occasionally triangles or rectangles; sometimes there is an ornamented band between the fields; with astragal tube along one side	distribution along the Rhine lines and further to the west, some finds along the Danube lines		364/370-407 (west of the Rhine)	Gürtelgruppe 2
	Sorte 2 Form A Typ b	rectangular plate and rectangular, oval or saddle shaped bow				
	Sorte 2 Form D	rectangular plate with curved sides; animal heads extend from the frame; the tongue has curved projections at the sides	found in small numbers west of the Rhine, only one found in <i>Pannonia</i> , two in Britain; mainly distributed in the east		no date range specified by Sommer	

<b>cf. Sommer (1984) strap-ends</b>	<i>Amphoraformige Riemenzunge Form B Typ c Var. 1b</i>	amphora shaped strap-end with ornamental formed or no elaborate handles; Var. 1b: with end decoration with the borders of the leaf reaching over the top		364/370 - 407 for Rhine region - North Gaul	<i>Gürtelgruppe 2</i>
	<i>Amphoraformige Riemenzunge Form B Typ c Var. 2e</i>	amphora shaped strap-end with ornamental formed or no elaborate handles; Var. 2e: without end decoration and without handles		310 - 350/360 for Rhine region - North Gaul	<i>Gürtelgruppe 1</i>
	<i>Riemenzunge Form C Typ d</i>	disc or plate shaped strap-end with undecorated smooth edges		400-450 for Rhine region - North Gaul	<i>Gürtelgruppe 3</i>
	<i>Riemenzunge Form D</i>	rectangular or almost square strap-end, made of a folded tin plate		364/370 - 407 for Rhine region - North Gaul	<i>Gürtelgruppe 2</i>

Table 5: Detailed overview of the Graveyard A burials with 'closely' datable grave goods and/or presumed weapons. The dates marked in grey represent conflicting data between Böhme (1974/1987) and Sommer (1984). This overview is followed by the list of mentioned types from Sommer (1984) as interpreted by Swift (2000a). Taken over from Swift (2000a).

## APPENDIX 7 - Oudenburg Graveyard C. Overview of the burials: their characteristics and their content



Table 6: Graveyard C burials: characteristics and content.

GRAVES GRAVEYARD C	ORIENTATION	INTERSECTION	LENGTH OF COFFIN	SKELETON	NO GRAVE GOODS	GRAVE GOODS						DECEASED gender/age (based on physical-anthropological analysis, grave goods and/or length of coffin)	PHASING (cf. graveyard A) based on grave goods and/or intersection
						POTTERY	BROOCHES	COINS	OTHER METAL	GLASS	OTHER		
grave 1	E-W/W-E		undet.	no remains		three beakers ARG SA Chenet 334a, mainly 4th-century type (Brulet in Brulet <i>et al.</i> 2010, 226)						undet.	
grave 2	E-W/W-E		undet.	no remains		one dish Mayen Alzei 34 (second and third quarter 4th century according to Brulet in Brulet <i>et al.</i> 2010, 418); one NOG flagon (found upside down in the grave, probably originally on the lid of the coffin)						undet.	PHASE 1
grave 3	E-W		1.84	skeleton remains, clear position of the head	X							remains of two individuals: one of 4-9 years, one late juvenile / young adult	
grave 4	N-S	intersects grave 18	1.62	skeleton remains, clear position of the head		NOG flagon			six bronze bracelets (badly preserved), found together, next to the head (probably all with hook-and-eye fastening (of one bracelet both ends were broken off), two round-sectioned, four flat-sectioned of which three with clear zigzag chip carving decoration, badly preserved but likely to be Swift (2000) decoration e2; part of very fine chain, clustered together, with double round links and one eye-end preserved: necklace?; remains of pewter plate (cf. the remains of six pewter plates found in graves 57, 58, 69, 70, 100 and 115 at graveyard A: Mertens and Van Impe 1971)			adult, female considering the bracelets	PHASE 2
grave 5	E-W/W-E		undet.	only a few skeleton remains					bronze bracelet, hook-and-eye fastening largely broken off, flat-sectioned with faceted edges, badly preserved but most likely Swift (2000) decoration b13		jet bracelet, smooth, round-sectioned (outer diameter: 4.5 cm; inner diameter 3.5 cm)	child	
grave 6	N-S/S-N		1.84	some skeleton remains	X							child 5-10 years	

GRAVES GRAVE-YARD C	ORIENTATION	INTERSECTION	LENGTH OF COFFIN	SKEL-ETON	NO. GRAVE GOODS	GRAVE GOODS						DECEASED gender/age (based on physical-anthropological analysis; grave goods and/or length of coffin)	PHASING (cf. graveyard A) based on goods and/or inter-section	
						POTTERY	BROOCHES	COINS	OTHER METAL	GLASS	OTHER			
<b>grave 7</b>	N-S		1.79	skeleton remains, clear position of the head									child 4-8 years	
<b>grave 8</b>	S-N	intersects grave 18	1.36	skeleton remains, clear position of the head	one ARG SA roller-stamped bowl Chenet 320 with roller stamp UC-125 dated to the second half of the 4th century (identification by W. Dijkman); two beakers BE; one NOG flagon			eight bronze coins, possibly an assemblage of c. AD 350 (+/- 10 years) (dated by Stroobants F. and van Heesch J. (both Coin Cabinet of the Royal Library of Belgium, Brussels))	bronze buckle (no belt plate preserved) with strap end through; buckle, badly preserved, with stylised confronting animal heads with ridge, fitting to the centre Sommer (1984) Sorte 1 Form A, typ c (with bag-shaped belt plate) (cf. Sommer 1984, Taf. 1: 6) or Sorte 1 Form C typ d (with rectangular belt plate) (cf. Sommer 1984, Taf. 4: 3) (probably buckle Form Spontin (type 22) by Böhm (1974) (in 1974, dated as Stufe II, c. AD 380-420, later in 1987 as Fundgruppe B c. AD 435-465); amphora-shaped strap end with central, rather large, round perforation Sommer (1984) Form B, too little preserved for further identification, according to Keller 1971, 65 2nd and half 4th century AD -> Göttinggruppe 2 of Sommer (1984) c. AD 364/370-408 is most likely for the combination of these two finds; fragment of fine, twisted rod (with chip carving?) with small transversal piece; undet.	five different glass beads (1x blue, polyhedral; 1x blue-green, bar shaped; 1x green, short hexagonal; 1x blue, round; 1x blue, small biconical), possibly from a bracelet and generally dated to the 4th century (see Cosyins 2016a)			child of 4-9 years, male considering the buckle and strap end	PHASE 2 start
<b>grave 9</b>	W-E		1.78	skeleton remains, clear position of the head	X								late juvenile or adult	
<b>grave 10</b>	W-E/E-W		1.91	some skeleton remains (Skull in situ; second burial?)	one ARG SA bowl Chenet 320 with roller-stamp decoration group Hubener 2				bronze crossbow brooch type Swift-Priest-Keller 3/4B, dated to the second half of the 4th century, possibly still occurring in the early 5th century AD; common crossbow brooch type at graveyard A, (identified by V. Van Thienen (2016c))	bronze D-shaped buckle with bronze tongue Simpson (1976) Group 1, Sommer (1984) Sorte 1 Form A / Sorte 1 Form C typ b Var. 3 depending on the shape of the missing belt plate; reference datable in Sommer (1984) Fundgruppe 1, c. AD 310-350 or 364/370 - 408			adult, male considering the crossbow brooch and buckle; however, analysis of preserved teeth points to a child of 3-6 years; from a second burial??	PHASE 2?
<b>grave 11</b>	N-S/S-N		undet.	no skeleton remains	X								undet.	

GRAVES GRAVE-YARD C	ORIENTATION	INTERSECTION	LENGTH OF COFFIN	SKELETON	NO. GRAVE GOODS	GRAVE GOODS						DECEASED gender/age (based on physical-anthropological analysis; grave goods and/or length of coffin)	PHASING (cf. graveyard A) based on grave goods and/or inter-section			
						POTTERY	BROOCHES	COINS	OTHER METAL	GLASS	OTHER					
<b>grave 12</b>	E-W		1.76	skeleton remains (too deteriorated for further study), clear position of the head							two beakers grey, wheel-turned	bronze buckle with stylised, to the centre biting, dolphin heads, with belt plate with punched circle-and-dot decoration and bronze tongue-Sommer (1984) Sorte 1 Form C typ d Var. 2, according to Sommer (1984) dated in <i>Correlgruppe</i> 2, c. AD 354/370 - 408; cf. also Keller 1971, 52; (according to Chadwick Hawkes (1962) buckle Type 1A, dated with a longer time-span until middle of 5th century AD)			PHASE 2	
<b>grave 13</b>	W-E		2.12	almost complete skeleton	X											
<b>grave 14</b>	E-W	presumably two burials on top of each other	1.79 (Coffin position of earliest burial)	only skeleton remains of the earliest pre-served, with clear position of the head	X											adult, male considering the buckle
<b>grave 15</b>	E-W/W-E		(grave pit: 1.40)	no skeleton remains	X											adult (earliest burial)
<b>grave 16</b>	E-W/W-E		undet.	no skeleton remains	X											child (based on length of grave)
<b>grave 17</b>	E-W/W-E	intersected by grave 8	1.23	some skeleton remains					completely fragmented brooch?, undetermined		two grey, wheel-turned beakers, of which one is of the type with long, straight neck and globular body, dating to the 4th century					child of 2-5 years
<b>grave 18</b>	N-S/S-N	intersected by grave 4 and 8		no skeleton remains	X											undet.
<b>grave 19</b>	E-W/W-E	disturbed grave? intersects grave 20		only a few skeleton remains	X											undet.
<b>grave 20</b>	W-E	intersected by grave 19	1.12	skeleton remains, clear position of the head							one handmade bowl					child of 4-10 years

## APPENDIX 8 - Absolute chronological data available for the south-west corner site

### 1. Radiocarbon dates

Only seven radiocarbon determinations were ascertained for the 2001-2005 site (radiocarbon dating research executed at the KIK / Royal Institute for Artistic Heritage, Brussels<sup>2</sup>). They represent at the same time the only radiocarbon dates for the entire fort site of Oudenburg. Since the initial samples (the four KIA-samples 30987, 30986, 31727 and 33606) did not yield the desired tight results for the Oudenburg site - demonstrating that the period in question is less suited for this dating technique because of the many wiggles in the graphs<sup>3</sup> -, this research was not further enlarged. Three more samples could be dated within the context of a scientific research programme at the KIK (KIA-46100 and the two RICH-samples)<sup>4</sup>. Moreover, it is difficult to avoid the possibility that residual material is dated (re-used wood, older reworked charcoal, residual bone). Some conclusions, though, can be drawn from the radiocarbon dated samples.

inv. no. KIK	inv. no. OS	fort level	dated material	BP result	Cal result
KIA-30987	OS 83039a	2	charred wood	1835±25BP	130AD (68.2%) 215AD 120AD (93.7%) 250AD
KIA-30986	OS 70424a	4	charred grain	1900±25BP	75AD (68.2%) 130AD 50AD (91.9%) 180AD
KIA-31727	OS 7945	4	charred grain	1725±25BP	250AD (62.4%) 350AD 240AD (95.4%) 390AD
KIA-33606	OS 82555	4	charred grain	1730±25BP	250AD (68.4%) 350AD 240AD (95.4%) 390AD
RICH-23879	OS 44914	4	animal bone	1745±31BP	245AD (68.2%) 335AD 220AD (95.4%) 390AD
RICH-23881	OS 44900	4	animal bone	1771±30BP	220AD (68.2%) 330AD 130AD (95.4%) 350AD
KIA-46100	OS 2562 (60)	5	textile	1750±25BP	230AD (95.4%) 390AD

Table 7: Overview of the radiocarbon determinations of the south-west corner site.

Sample KIA-30987 is a piece of charred construction beam that was preserved in one of the construction slots of the building complex of fort level 2B. The calibrated result indicates that the occupation is definitely prior to AD 250.

Five samples derive from fort level 4. While the first one, KIA-30986 (burnt grain from the workshop area), gives a result that is far too old in comparison with the other two, the samples KIA-31727 and KIA-33606 (both charred grains), resulted in the same calibrated date: AD 240-390 (at 95.4%). The latter two dates confirm that this level is to be dated after AD 240. The date ranges of the two animal bone samples from two carrions found in the bottom fill of the large waste-pit OS 4980 of fort level 4, are too wide and cannot add more specification. The dated textile fragment of level 5 derives from the bottom of the shaft in between the two frameworks of the double well OS 2562 and its burial dates to the installation phase of the inner well. Its calibrated date in combination with the result from the dendrochronological analysis of the wood of the inner well (see below) evidences that fresh wood was used for this construction and that the felling date is representative for this last construction phase.

### 2. Dendrochronological dating

Only two structures of the south-west corner site yielded wood that was suited for dendrochronological analysis (research performed by K. Haneca (Flanders Heritage Agency)). These

<sup>2</sup> The radiocarbon analyses were performed by M. Van Strydonck or M. Boudin. KIA-46100 was executed by M. Boudin in the context of his PhD research (Boudin *et al.* 2011; Boudin *et al.* 2013).

<sup>3</sup> See for this topic: Eryvynck *et al.* 2009, 244-245.

<sup>4</sup> KIA-46100: dating analysis executed within the context of a research programme at the KIK by M. Boudin; after publication of this context in Vanhoutte *et al.* 2009c. The RICH-analyses: executed within the context of radiocarbon research by M. Boudin on leather. The animal bones (from carrions, hence primary depositions), analysed to verify the obtained leather dates, indicate that the leather results are clearly much too young. Therefore, these leather dates are not retained here.

comprise well OS 22926 from fort level 4 and well OS 2562, the double well from fort level 5. They represent the only dendrochronological dates for the Oudenburg fort and are most important for our understanding of the chronology of the fort's occupation.

Eight boards of well OS 22926 were selected for dendrochronological research. Wood anatomic analysis established that the wood was oak in all cases, summer oak (*Quercus robur*) or winter oak (*Quercus petraea*). The growing ring patterns of four different boards could be synchronised and resulted in one curve. The growth ring pattern of three other boards are strongly similar, and possibly at least two of them are from one and the same tree. That also enables a synchronisation and a middle curve. Both curves were joined in a series of 189 years' length. The first series yielded 13 sap rings. The most recent ring was formed in AD 260 and therefore the felling date can be situated between AD 260 and 275 (Haneca 2009).

Also the 'double' well OS 2562 was entirely constructed out of European oak (*Quercus robur* or *Quercus petraea*). The wood was characterised by wide growth rings and as a consequence ring-width series were often too short for dating. Dendrochronological dating of a beam from the outer framework, however, yielded a felling date of c. AD 266 but intentionally made holes, with a regular inner spacing, indicate that at least some of these timbers were re-used construction wood (and as such representative for fort level 4). Just inside the outer well, a wooden frame was laid after a date in between AD 319 and 329 as a construction element in building the outer framework or for cleaning out the pit during its use or before its reactivation in the second quarter of the 4th century. The felling date of AD 379/380 for boards of the inner framework sets a *terminus post quem* for the construction of the inner well and also for the last occupation phase of the stone fort (Haneca in Vanhoutte *et al.* 2009b). Since the general Roman practice shows that timber was used soon after it was felled (Hollstein 1965), it is most likely that these dendrochronological dates indicate the effective building activities. This is confirmed by the radiocarbon date of the textile fragment which can be related to the construction phase of the inner well (see before).

## APPENDIX 9 - Numismatic data from the Oudenburg fort

For the catalogue of the coins of the south-west corner site: see Addendum 4.

The catalogue lists the coin hoards and all loose coins found at the south-west corner site of the Oudenburg fort. The coins are sorted according to context level.

### 1. Introduction to the numismatic assemblage

On the south-west corner site of the Oudenburg fort, 1740 Roman coins<sup>5</sup> were collected, all identified by J. van Heesch (Coin Cabinet of the Royal Library of Belgium / KULeuven)<sup>6</sup>. Of the 1740 coins, 1204 are attributed to the Roman level (69.2%), 409 are assigned to the post-Roman level (incl. the finds from deposits that were mixed with post-Roman material) (23.5%), and 127 coins were recovered as stray finds (7.3%). The origin of the finds in the post-Roman level is uncertain (cf. Chapter II, Section II.2.3); a proportion may have been brought in from outside the fort precinct together with the accumulation of the 'dark earth', another part may be residual finds from the Roman level underneath. Even so, it is important to consider all coin data to gain insight in the fort chronology and its place within the context of the Roman occupation at Oudenburg in general since even the residual finds can yield chronological information. As it is believed that the extramural (civil) occupation only lasted until the 260s, it can be assumed that all late Roman coins reflect the military activities from or related to the fort.

Most of the coins were recovered by eye by excavators; 83 coins were metal detected finds, mostly from spoil, some from *in situ* layers. Another 61 coins were found within processed soil samples (cf. Addendum 4, coin catalogue rank P).

As is the case for all metal finds of this site, most of the coins were in a very bad condition. Being heavily corroded, labour-intensive conservation, although even not always with a successful result, was needed on all coins before identification could take place. As a consequence of the very bad condition of most of the coins, identification could very often not or only partly be made<sup>7</sup>, the latter based on some poorly preserved characteristics. Due to this poor preservation, an analysis of the origins of the coins in light of coin production or a study on the coin 'wear' are not possible.

### 2. General overview of the coin data

The present study focusses on the coins collected at the south-west corner site of the Oudenburg fort, but links are made to earlier coin finds at Oudenburg<sup>8</sup>. The research in 1956-57 and 1960 on the fort defences only yielded one coin, an issue of Crispus minted at Lyon and dated to AD 320-324 (Lallemand 1966, 117). The excavations in 1977 on the fort precinct by J. Mertens and his team yielded 115 coins, of which 49 could be identified (66 coins and fragments were unidentifiable). Of these 49 coins, 25 issues are attributed to 2nd-century periods: AD 96-117 (1), AD 117-138 (7), AD 138-161 (9), AD 161-180 (7) and AD 180-192 (1). The remaining 24 coins were dated in the period AD 260-275; however, twenty-one of them are copies, mainly of Tetricus

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<sup>5</sup> From the post-Roman levels, also fourteen medieval coins were collected: see Chapter II, Section II.2.3 (medieval coins listed in footnote).

<sup>6</sup> Only two key contexts could be studied in depth (well OS 22926 (level 4), and 'double' well OS 2562 (level 5), the latter published: Vanhoutte *et al.* 2009b). Although all other coins were not the subject of a study in depth, it is believed that the bad condition of the coins would in most cases not yield extra information (pers. comm. J. van Heesch).

<sup>7</sup> Therefore and for budgetary reasons, the last batch of non-cleared 335 coins were first X-radiated to ascertain their degree of conservation. This was prepared by L. Linders and assistants (Flanders Heritage Agency) and was executed at Vinçotte (Vilvoorde). This resulted in a selection of c. 25% of the coins for further conservation; the remaining c. 75% were too badly conserved to ensure result after conservation and were therefore decided to leave as 'unidentifiable'.

<sup>8</sup> The coin identifications of the other excavations were not integrated in the coin diagrams, since the older coin finds could not be re-studied and other methods of classification were used. Where possible, the data are integrated in the analysis.

I and II, and should rather be situated in the following period 275-294 (see further) (for the identifications: van Heesch 1991, 27-28, 277-278).

The excavations near the north-east corner of the fort (site Kapellestraat, ET24) yielded 59 coins. The earliest coins are two *sestertii* of Trajanus; other *sestertii* are issues of Hadrianus, Antoninus Pius (2), Faustina I, Lucius Verus and Julia Domna. The 3rd century is represented by Postumus (four double *sestertii*, one possible and three certain copies of a double *sestertius*, one copy of an *antoninianus* or double *sestertius*), four late 3rd-century *antoniniani*, and one *antoninianus* of Probus, minted at Lyon in AD 277. The 4th century at this site only includes two coins: a *nummus* of Helena (Trier, 337-340) and an AES-4 *Salus reipublicae*, minted at the end of the 4th century (van Heesch and Stroobants in Vanhoutte *et al.* 2014, 190-196; see Addendum 20).

### 2.1. Small coin hoards

The coin assemblage at the south-west corner site contains ten small coin hoards, most of them likely to have been contents of purses, representing in total (only) 117 coins. Six of them were found at level 4; two were recovered in the post-Roman level and two were collected as stray finds:

- Coin hoard 1 (COINS1450) (level 4) (Fig. 1): two connected piles (more or less still in their original form due to corrosion) of in total 32 low quality silver coins, with two identifiable coins of Gallienus: one early *antoninianus* type Elmer (1941) 59c, dated to AD 257-258, and one late *antoninianus* type Göbl (2000) 712, dated to AD 267-268.



Fig 1: Small coin hoard 1 from the primary infill of large waste-pit OS 4980, with detail to the right.

- Coin hoard 2 (COINS1447-1448-1449) (level 4) (Fig. 2): some 30 very corroded low-quality silver coins, clustered together, but too corroded to identify.





Fig 2: Small coin hoard 2, from fire layer OS 7957/7971, end fort level 4.

- Coin hoard 3 (COINS1442) (level 4) (Fig. 3): at least ten coins, connected together (due to corrosion), most likely all radiate copies.



Fig 3: Small coin hoard 3, also recovered from fire layer OS 7957/7971, end fort level 4.

- Coin hoard 4 (COINS1222) (found unstratified): four official *antoniniani*, connected together (due to corrosion), dated to AD 250-260 or 275-280.
- Coin hoard 5 (COINS0084) (level 4): nineteen connected coins of low quality silver dated to the second half of the 3rd century. The identifiable coins all belong to the period after c. AD 266. They all are likely to be *antoniniani* or copies of Gallienus (AD 260-268), Postumus (AD 260-269) or Claudius II (AD 268-270). Four coins have a diameter of c. 22 mm and are presumably heavy corroded older *antoniniani* (AD 215-260)<sup>9</sup>.
- Coin hoard 6 (COINS0218) (level 4): a pile of five connected coins, but no identification is possible due to corrosion.

<sup>9</sup> Identification based on metal, thickness and diameter.



- Coin hoard 7 (COINS0688) (level 4): five connected coins, due to corrosion only datable to the 3th-4th century.
- Coin hoard 8 (COINS0006) (unstratified): five undetermined *antoniniani*, connected together (due to corrosion).
- Coin hoard 9 (COINS1275) (post-Roman level): a small pile of three coins, unidentifiable.
- Coin hoard 10 (COINS0103) (post-Roman level): four undetermined issues, connected together due to corrosion.

## 2.2. Loose coins

All other coins can be considered as isolated coin losses. However, the presence of several coins connected per two and some concentrations of coins in levels indicate that they originally may have been part of dispersed coin hoards. The coin hoards are not included in the presented diagrams; these only include the 1623 loose coins.

Most of the assemblage consists of copper alloy coins<sup>10</sup>. Only three *denarii* (silver), one silver *antoninianus* of Gallienus or Valerianus and one iron 2nd-century copy of an *as* were counted. Billon ('bad silver', silver with a majority of copper alloy content) is more common in the assemblage: apart from hoards 1, 2 and 5, all consisting of billon coins, another *antoninianus* and a *nummus* of billon are listed<sup>11</sup>.

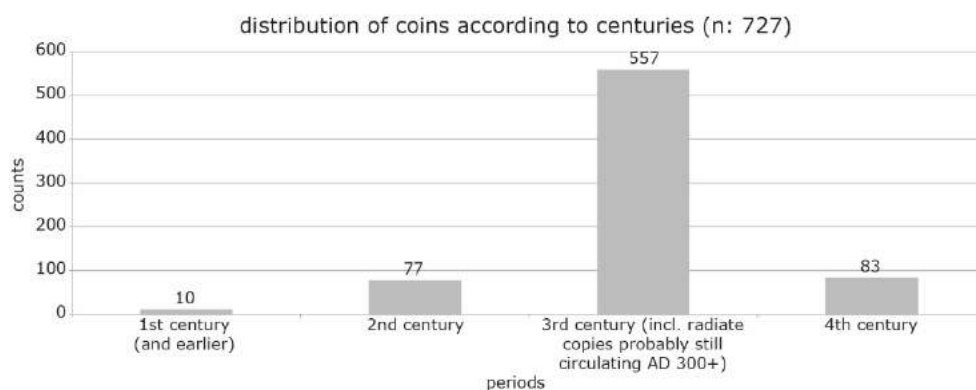


Fig 4: General classification in centuries of the coins of the south-west corner site.

In the case of only 238 coins the emperor/emperess/ruler can be identified. The coins of the southwestern corner site are classified according to the periodisation which Lallemand (1989, 18) has presented for the region and which has also been applied by van Heesch (1998, 22-23) (Fig. 6, representing 676 coins; 947 coins are not classifiable according to this periodisation<sup>12</sup><sup>13</sup>). As for the copies of the late 3rd century, it was decided to classify the copies of the Tetrici not in the period of their prototypes (as is mostly the case in numismatic studies), but in the successive period, from AD 275 onwards, since these coins were mainly minted and in circulation after AD

<sup>10</sup> It is however important to take into account the bad preservation of the coins, making it often hard to determine at first sight with absolute certainty the material the coin was made of (confusion between copper alloy and billon is possible). After c. AD 270 (official) bronze coins were no longer minted; however, the bad preservation of the new coins with very low silver proportion gave them the impression of being of copper alloy (and are as such catalogued).

<sup>11</sup> It is however possible that the assemblage contains more billon coins; the bad preservation of several pieces may have identified them wrongly as being of copper alloy.

<sup>12</sup> E.g. 42 coins identified as '*antoninianus* AD 266-300' or '*antonianus* or imitation AD 266-300' cannot be included in this classification.

<sup>13</sup> The periodisation ends at AD 402, as this is the date around which there has been an almost complete cessation of the large-scale minting of copper alloy coins in the West.

275<sup>14</sup>. In that respect these coins form one of the guide fossils to date the end of fort level 4. To include as many coins as possible (with the aim of increasing the sample), a broader periodisation is presented, integrating 706 coins (Fig. 7). An overview by centuries represented by the loose coins shows a general overview of the coin spectrum of the site with a maximum of identified coins included (Fig. 6, 727 coins included).

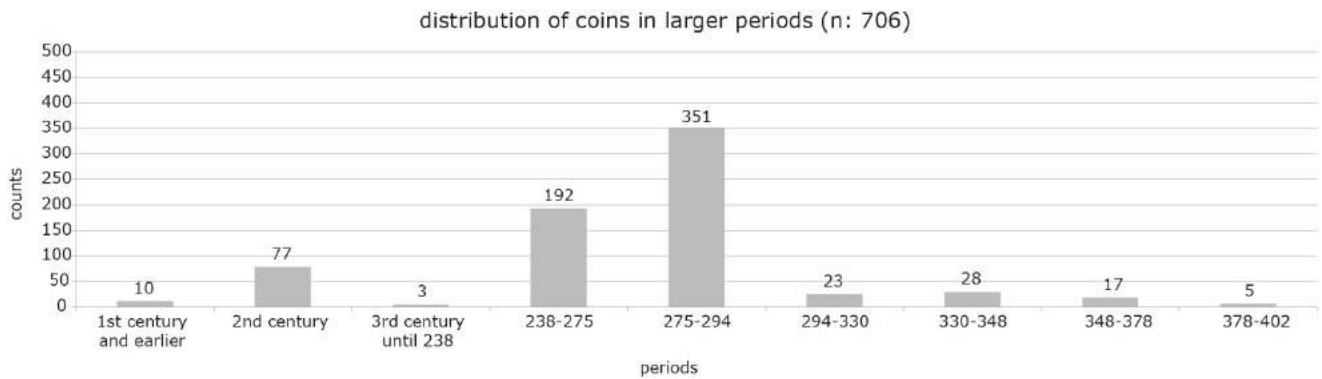


Fig 5: Chronological distribution of the coins of the south-west corner site, in large periods.

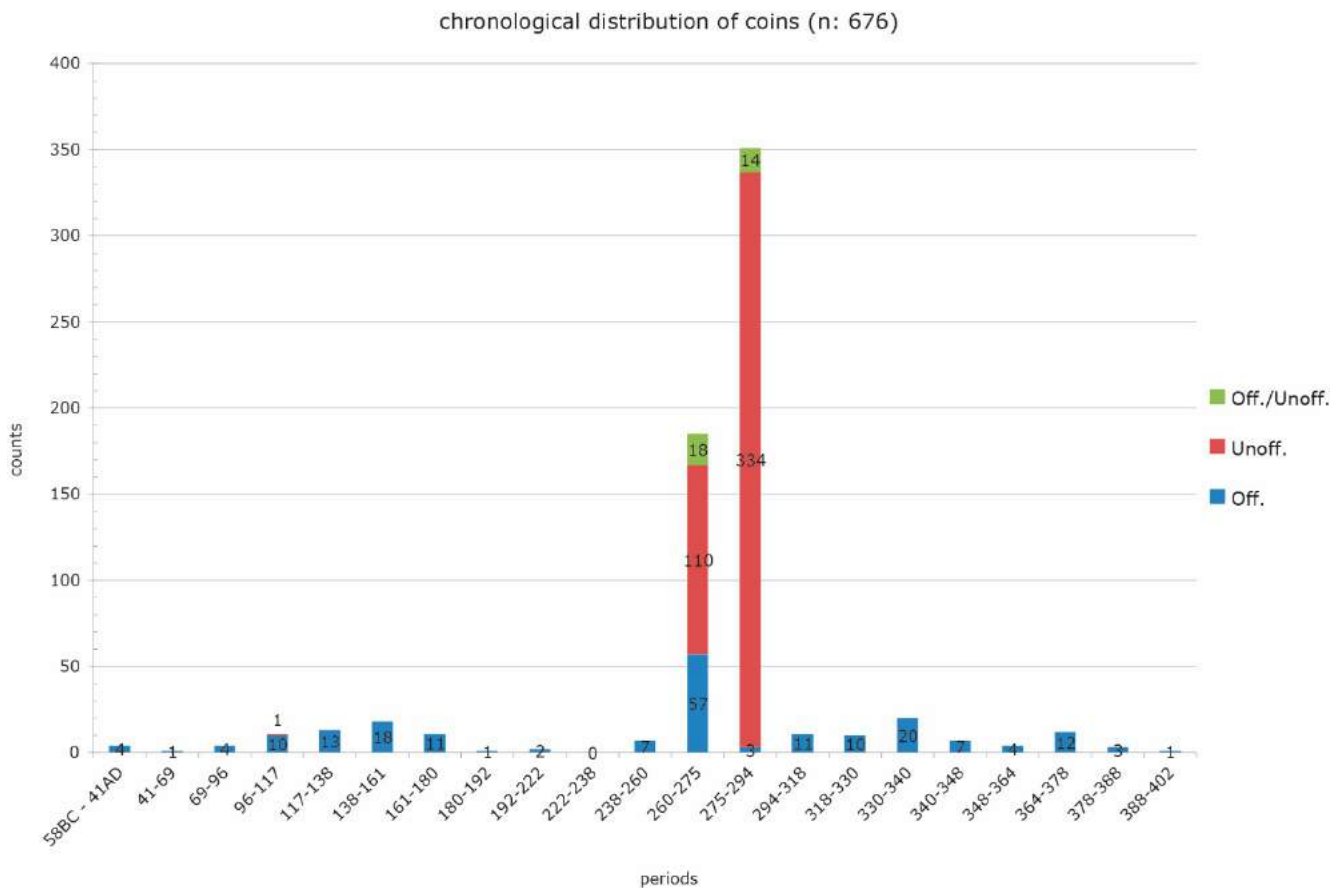


Fig 6: Chronological distribution of the coins of the south-west corner site according to the periodisation by Lallemand (1989) / van Heesch (1998).

<sup>14</sup> Van Heesch 1998, 23. Doyen even states that for Reims no imitation of a prototype in the period 268-275 was found in a context which can be undoubtedly assigned to that period (Doyen 2007, 378). It is however important to take into account that many site studies classify these copies within the period AD 260-275. That was also the reason why van Heesch chose to equally classify them in that period in his 1998 publication (van Heesch 1998, 23).

### 3. First-century and earlier coins, and their relationship to the stratified sequence

The 1st century is represented in the coinage by Augustus (three *as*), Augustus/Tiberius (one *as*), Nero (one *as*), Titus (one *sestertius*), Domitianus (two *sestertii*) and one undetermined *sestertius*. Since a civil occupation started at Oudenburg in the second half of the 1st century AD (Creus 1975), it is not surprising that at least ten coins are assignable to this century. The presence of the three *as* of Augustus, especially the one from the workshop Nîmes I and the one from the workshop Lyon I, is remarkable since these early coin series disappeared very quickly out of circulation based on the well-dated assemblages of Roman camps along the Rhine (van Heesch 1998, 64). They are definitely related to the civil settlement of Oudenburg, even then being already old coins still in use. The *as* of Nero and the aforementioned coins are likely to represent residual finds from the earliest phase of the civil settlement. Since there are no indications that the civil settlement of Oudenburg, of which the earliest phase was found underneath the late Roman cemetery c. 400 m to the west of the fort, expanded as far east in its initial phase, these coins probably circulated (and travelled) over time.

Coin hoards have proven that *sestertii* from the Flavian emperors until Commodus still circulated in our region until the reign of Postumus (AD 260-269), and even until Tetricus (AD 271-274) (van Heesch 1998, 97, 99, see also 102). Doyen has shown that at Reims such *sestertii* still circulated until the monetary reformation of AD 294 (Doyen 2007, 264). The loss of the *sestertii* of Titus and of Domitianus can therefore not be dated: they can either be residual finds from the civil settlement<sup>15</sup> or they can have been circulating still during the fort occupation in the 2nd or 3rd century.

### 4. Second-century coins and their relationship to the stratified sequence

It is difficult to interpret all 80 2nd-century coins. The 2nd-century coin spectrum consists of: Domitianus/Trajanus (one *as*), Trajanus (one *as*, one *as* or *dupondius*, one *dupondius*, five *sestertii*), Hadrianus (one *as*, one *as* or *dupondius*, five *sestertii*), Sabina (one *sestertius*), Faustina I (one *as*, one *sestertius*), Antoninus Pius (one *as*, one *denarius*, fourteen *sestertii*), Faustina II (one *as*, one *as* or *dupondius*, one undetermined), Faustina I or II (one *as*), Lucius Verus/Marcus Aurelius (one *sestertius*), Marcus Aurelius (one *as*, five *sestertii*), Commodus (three *sestertii*), undetermined (one *dupondius*, four *as* or *dupondii*, twenty-one *sestertii*, one undetermined), and one undetermined iron copy of an *as* dated to the start of the 2nd century. Of the 80 identified 2nd-century coins of the site, 60 finds are *sestertii*, types which were potentially still circulating until c. AD 270 (cf. *supra*). Until that time, it is therefore not possible to distinguish amongst the 2nd-century coins the residual ones and the ones still in circulation.

Based on the stratified evidence, none of the 2nd-century coins can be attributed to the start level of the fort occupation, making it impossible to define the beginning of the military occupation at Oudenburg based on the coin loss. Only one coin derives with certainty from level 1, namely an *as* or *dupondius* dated to the 1st to 3rd century.

### 5. Third-century coins and their relationship to the stratified sequence

The beginning of the 3rd century is hardly represented in the coinage, with one *sestertius* of Septimius Severus (AD 193-211) (COIN0940) and one *denarius* of Julia Domna (AD 193-211) (COIN1072). The latter, silver coin, a residual find at level 5, must presumably have been disturbed

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<sup>15</sup> From the excavations in the 1960s on the late Roman military graveyard A under which remains of the civil settlement were uncovered, no Flavian coins were found (van Heesch 1998, 112).

from one of the first fort levels since the *denarii* went out of circulation in the 250s as the result of the minting in large numbers of *antoniniani* by Gordianus III (van Heesch 1998, 199).

Not only the beginning, but the total first half of the 3rd century AD hardly provided coins at the site. A similar dip in the coin loss is seen at Aardenburg (see Chameroy 2013, 81). Van Heesch considers this as a typical phenomenon at settlements in *Gallia Belgica* (van Heesch 1998, 108-109). Bronze coins barely reached the region in the 3rd century prior to Postumus. From Commodus or Septimius Severus onwards, bronze coins apparently were no longer important as payment for the soldiers and mainly silver and gold were used (van Heesch 1998, 184); obviously, these were lost less frequently. As is well-established, coin loss at this time and at others is heavily influenced by the availability of low-value currencies (cf. Casey 1986, 69-74). It seems that 2nd-century *sestertii*, still circulating at that time, were sufficient for the daily transactions (van Heesch 1998, 105). This situation in the region is in contrast to the first half of the 3rd century in *Britannia* and the Danube provinces, where the troop concentrations were well-supplied with Severan coins (van Heesch 1998, 109-110, see also Kemmers 2009).

However, comparison with the chronological ranges from the samian stamps and decorations, offers another explanation. As these strikingly also show a dip in the period AD 205-215, this coin loss dip probably partly represents a period of non-activity at the site.

In the coin spectrum of the Oudenburg site, the period AD 238-260 includes at least seven coins. An *antoninianus* of Gordianus III (238-244), originating from fort level 3, produces a *terminus post quem* date for this fort occupation. Since the coins of Gordianus III and of Philippus I were taken out of circulation by Postumus (van Heesch 1998, 185), this Gordianus III issue with its high value most likely did not longer belong to the common purse after 260. All other coins of this level 3 are older (except for two intrusive finds<sup>16</sup>) and mainly not identifiable. The absence at this level 3 of Gallienus (253-268) and the Gallic Empire (260-274), of which the coins of the latter are so well represented in the following period, is an extra indication that this fort occupation most likely pre-dates AD 260, probably even AD 253.

This period AD 238-260 is furthermore represented at the site by coins of the early Gallienus or co-ruler (two *antoniniani*), Valerianus I (one *antoninianus*), Gallienus/Valerianus (one silver *antoninianus*) and two undetermined *sestertii* showing characteristics for this period, all belonging to fort level 4 or later levels.

The coin assemblage at the Oudenburg site shows a marked increase in the coin loss in the second half of the 3rd century from AD 260 onwards. This is again a general phenomenon, not only in Gaul but also in Britain, in the Rhine and Danube provinces, Spain, Northern Italy etc., mainly in the period AD 260-275 (van Heesch 1998, 127). After AD 250 major changes took place in the Roman Empire, politically, economically and on a monetary level. The threat from outside the Roman borders increased and internally the Roman Empire was menaced by repeated famines, the plague, the increasing power of military leaders and related usurpations. At the same time there was a lack of precious metals caused by the exhaustion of several mines and the loss of some mining areas to invaders. Since there was a dramatic increase in expenditure due to pay raises and subsidies to barbarian tribes, constantly new solutions needed to be found to satisfy the needs (van Heesch 2004, 252). This all had a major influence on the monetary system and according to van Heesch, this coin loss increase is mainly the reflection of this major economic recession. The increasing coin degradation led to a very high inflation from c. AD 270, only temporarily remedied by the coin reforms by Aurelianus in AD 274 (van Heesch 1998, 127). The use of large amounts of small change, *antoniniani* and copies with minimal value, for daily transactions but also for interregional trade, led evidently to a high coin loss.

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<sup>16</sup> The younger coins COIN1141 (Tetrarchy) and COIN0994 (Constantine) must represent intrusive finds, since this level did not provide any coin from the period AD 260-275 nor any of the late 3rd-century copies which are so abundantly found in the subsequent level 4.

Of the period AD 260-274<sup>17</sup>, to which 185 coins are assigned, only 41 coins can be classified according to reign. The identifiable ones of the Gallic Empire are issues of Postumus (ten official issues: seven *antoniniani*, one *as* or *dupondius*, one *sestertius*, one double *sestertius*, next to three copies (of a *sestertius* and of two double *sestertii*), Victorinus (one official *antoninianus*), Tetricus I and II (five official *antoniniani*), Victorinus/Tetricus (two official issues: one *antoninianus* and one undetermined). The legitimate Central Empire is represented by Claudius II (four official *antoniniani*, four copies of which two *divo Claudio*, one undetermined), (late) Gallienus (seven official *antoniniani*, maybe eight), Gallienus/Claudius II (two official *antoniniani*), Salonina (one official *antoninianus*). This results for this site in eighteen official coins from the Gallic Empire versus fourteen official coins from the Central Empire. Added with the coins found at the northeastern site Kapellestraat, this results in twenty-two official coins from the Gallic Empire versus fourteen or fifteen from the Central Empire. The clear presence of Postumus coins (in total twenty-two: fourteen official issues and eight copies) is not surprising. Roman bronze coins hardly reached the region during the 3rd century. The need for small change resulted in a large exercise in bronze coin minting by Postumus (van Heesch 1998, 135). According to Kiernan, regular issues of Postumus' bronze coins ceased within the first four years of his reign. The unofficial copies were produced in large numbers until at least AD 270 and can be understood as crisis money in response to the need for small change (Kiernan 2009a, 625 and 644).

	Postumus	Victorinus	Tetricus I/II	Victorinus / Tetricus	Gallienus (after 260)	Salonina	Claudius II	Gallienus / Claudius II
off.	14	1	5	2	7 or 8	1	4	2
unoff.	8		88				4	
total	22	1	93	2	7	1	8	2
	<b>118</b>				<b>18</b>			
	(30 when the 88 Tetricus copies are excluded)							

Table 8: Proportions of coins of the Gallic Empire versus the Central Empire at the south-west corner site.

At the Aardenburg fort, also a strong share of Postumus coins is present with twenty-one official coins (Chameroy 2013, 83). The rate of the official coins from the Gallic Empire versus the coins of the Central Empire indicates the significance that Aardenburg, and also Oudenburg, must have had during the reign of Postumus. Doyen demonstrated that the bronze coins of Postumus, both the official ones and the copies, kept on circulating until the coin reformation of 294 (Doyen 2007, 264). The dating of the coin losses of the Gallienus, Claudius II and *divo Claudio* coins is however problematic. After Probus, c. AD 282, the north of Gaul became well-provided with these *antoniniani*. The official coins of Victorinus and Tetricus (I and II) at the Oudenburg site are the proof that the fort remained active at least during the entire Gallic Empire. The period AD 260-274 coins are all attributed to fort level 4 or later levels.

The impressive peak in the coin loss in the period AD 275-294 is entirely due to the large number of radiate copies. Only three undoubted official coins were counted datable to this period, of which only one could be identified to a specific reign: an official *antoninianus* of Probus (276-282), a residual find in a mixed level (level 5+post). Another Probus coin, dated to AD 277 and found at the north-east corner site (site Kapellestraat), is likely to have been the closing coin of a dispersed and disturbed coin hoard with Postumus coins (van Heesch and Stroobants in Vanhoutte *et al.* 2014, 192-196). A total of 33 coins was found in a restricted area. Nine of the issues are attributed to Postumus (four official issues, five copies). The large number of 2nd-century *sestertii* may also have belonged to the coin hoard: they still circulated at the time in large numbers and they were often potted (that is to say, set aside in collections by owners) because of their high coin value, especially after the devaluations of the 'silver coins' c. AD 266 (van Heesch 1998, 99-105; see Doyen 2007, 257-265 for a recent synthesis). It is of course difficult to determine which coins were part of the coin hoard and which were not. The *antoniniani* and their copies of the late 3rd century (4 in total) may also have belonged to the coin hoard since mixed coin hoards of *antoniniani* and

<sup>17</sup> It is important to take into account that the classification of the coins into the periods AD 260-274 and AD 275-294 cannot be considered unconditionally. Based on size, form and material, several undetermined *antoniniani* and imitations were classified either within the period 260-274 or within the period 275-294.

*sestertii* were not unusual, but this is impossible to stipulate with certainty (van Heesch and Stroobants in Vanhoutte *et al.* 2014, 195).

Both Probus coins can be assigned to fort level 4 and serve as *terminus post quem* evidence for the final phase of this period. However, two coins assignable to the Tetrarchy (c. AD 294-310) (COIN1141 and COIN0171: one intrusive find in an older level and one unstratified find) may also originally have belonged to this level 4. Coins from the Tetrarchy are generally rare and the determining factor therefore is the monetary system. Due to their size and value these coins were hardly ever permanently left or lost. In this period the 3rd-century *antoniniani* and their copies, mainly the coins minted after c. AD 270, kept on circulating (van Heesch 1989, 167).

Apart from these official coins, the period AD 275-294 is almost entirely filled with the many copies of Tetricus I and II. At the south-west corner site, 88 copies are undoubtedly representing these rulers; another 246 are very likely to be attributed to them. As already mentioned, also the excavations in 1977 in the northern sector of the fort yielded a considerable number of these copies. The coin degradation from AD 268 onwards led to a monetary reformation by Aurelianus after he brought under control the Gallic Empire in AD 274. The new coinage however hardly circulated in the North-West of Gaul (or Britain) and mainly copies of Tetricus I and II, which were apparently not withdrawn from circulation by the Central Empire, dominated the coin circulation in the region (King 1981, 93). Shortly after the fall of Tetricus I (AD 274), old bronze coins were probably re-used as raw material for manufacturing copies of *antoniniani*, containing no silver. These copies, also called 'barbarous radiates', act as small change in the late 3rd and early 4th century (van Heesch 2000, 34). They were mainly minted after the reigns of the Tetrici, after AD 274; therefore they are classified here in the period AD 275-294. These unofficial copies were likely to have been minted by local important landowners<sup>18</sup>. New coins seem to have been hardly supplied to the North of Gaul; the copies appear to have been generally accepted and can be considered as 'crisis money', tolerated by the government, and only after a while forbidden by them. In the beginning, these copies were very recognisable and heavy, but probably right after the reign of Probus (AD 276-282) their diameter and weight decreased (van Heesch 1998, 135). Doyen for Reims and Gricourt *et al.* for Bliesbruck concluded that they were still produced after AD 295 and probably until c. AD 310 and circulating until at least AD 335 (Doyen 2007, 378; Gricourt *et al.* 2009, 660, 662). However, a recent study on the coin finds of the Rue Perdue cemetery at Tournai demonstrates that the role of the radiate copies in the early 4th century was apparently 'extremely reduced'. There are even indications that they might have been already banned from circulation before the end of the 3rd century (and at least by AD 313 at the latest) (van Heesch and Weinkauff 2016, 110-114). The period AD 275-294 coins are all attributed to fort level 4 or later levels.

Fort level 4 yielded in total 726 loose coins (44.7% of the 1623 loose coins found at the site), apart from six coin hoards (representing 101 coins). About 552 of the loose coins belong to an area of fire layers of c. 32 m<sup>2</sup> situated in the south-east corner of Unit II but stretching further south passing the southern limit of this workshop (see Chapter II, Section II.4.6); 60 coins found on top and in the covering layers can be added and result in a concentration of 612 loose coins. Three coin hoards also belonged to this fire level (coin hoards 2, 3 and 7) and result in a final total of 657 coins. This concentration of coins warrants specific attention here. The loose coins within this concentration consist of: Hadrianus (one *as*, one *sestertius*), Antoninus Pius (two *sestertii*), Faustina II (one *as*), Gallienus? (one *antoninianus*), Claudius II (two copies of *antoniniani*), Postumus (one copy of a double *sestertius*), Victorinus/Tetricus (one *antoninianus*), Tetricus I/II (one *antoninianus*, 28 copies, one undetermined), undetermined (seven *sestertii*, one *as* or *dupondius*, one copy of a *dupondius*, fourteen *antoniniani*, fourteen *antoniniani* or copies, 275 copies, 260 undetermined). One of the copies possibly belongs to the category of the 'minimissimes'. In total, two so-called 'minimissimes' (by Gricourt *et al.* 2009, 631) can be distinguished in the coin assemblage of the south-west corner site: one at this level 4 (COIN0731: diam. 0.75-0.9) and one unstratified find (COIN0058: diam. 0.6-0.7). These small copies, 'classe 4' of Doyen (2007, 283) with a diameter of 0.7 to 0.9 cm, are considered as the last phase in the minting of copies. They are dated by Mattingly (1936) in the period AD 296-305, by Gricourt *et al.*

<sup>18</sup> Doyen 2007, 288-290 lists the sites at *Britannia*, *Gallia Belgica*, *Germania Superior* and *Gallia Lugdunensis* where workshops are found where imitations of the late 3rd century were struck.

to AD 306-310 (see Gricourt *et al.* 2009, 631 with references). The presence of such a copy at level 4 probably should move the dating of the end of this level further ahead to at least the very end of the 3rd or even the beginning of the 4th century. However, the dating for these minimal radiate copies could not be confirmed (yet) for our region and a precise chronology for this type is very difficult (pers. comm. J. van Heesch). Besides, we should be cautious to draw major conclusions from just one coin; being so small, it can easily be an intrusive find from fort level 5.

A large proportion of this concentration of 612 coins, although wide-spread but found in a restricted area, is likely to be (for the most part) the remains of a dispersed coin hoard. There are no indications – no specific production waste or tools were found – to relate these finds to a local coining workshop. An extra argument to identify this wide cluster of coins as the remains of a hoard, is the presence of three small coin hoards within this fire level: coin hoards 2, 3 and 7. In total, six of the ten coin hoards found at the south-west corner site belong to fort level 4. Apart from the small coin hoards 2, 3 and 7, these comprise coin hoard 1 (found in the primary filling of the large waste-pit OS 4980 which yielded also brooch production waste), 5 (found in the filling of well OS 22926) and 6 (found in a level, not a closed context). What these small coin hoards represent, is not clear. Are these all lost purses or are they scrap for reworking? Since they were all found in the vicinity of the fire places and furnaces, the latter is not unlikely. However, the low value of these coins would not be so attractive for reworking.

The increasing coin loss at Oudenburg at the end of the 3rd century can be compared with that of large cities and *vici* like Bavay, Tournai, Tongeren, Namen and Liberchies, and *villa* domains in the vicinity of Tournai and Cambrai. Van Heesch believes this large coin loss does not only reflect the inflation and the growth of the coin stock, but also the position and the significance these places had in a period when other *vici* and *villae* did not or barely survived the period of the Gallic Empire (van Heesch 1998, 146-147). While it is clear that the Oudenburg fort started under Postumus (AD 260-269), the end date is more difficult to determine with the radiate copies still circulating until at least AD 294. That the Oudenburg fort continued to be occupied after the Gallic Empire ended, is obvious, based on the two Probus (276-282) coins. It is very likely that the Tetrarchy coins should be related to this fort level. This may be confirmed by the presence of the two *minimissimes*, of which one was found at level 4 (although this one is rather large), pushing the end date of level 4 possibly further to at least c. AD 300 although their attribution to fort level 4 is not certain (see before).

The coin evidence from both the Oudenburg and the Aardenburg fort indicate that the end of their late 3rd-century occupation is most likely related. Chameroy believes that the comparable rate of Victorinus and Tetricus copies at Aardenburg (19 official coins vs. 65 copies or a rate of 0.29) versus other sites at *Gallia Belgica* points to a coin circulation at Aardenburg until at least the mid-280s (Chameroy 2013, 84). The two known coin hoards from Aardenburg (A and B) contain many copies and are likely to have been closed off after the Tetrici (van Heesch 1998, 137). Chameroy concludes from the proportion of copies in coin hoard A that a closing off of the hoard, and of the fort, cannot be dated prior to the early 280s. As a plausible end of the Aardenburg fort, he suggests the context of the campaign of Maximianus (AD 285-305) (Chameroy 2013, 84). The absence of 4th-century coins at Oudenburg level 4 may be an argument, although not conclusive, for dating the end of fort level 4 not later than the start of the 4th century. From both Aardenburg and Oudenburg, no issues of Carausius (AD 286-293) or of Allectus (AD 293-295/6) were found, confirming the fact that these forts were not part of the British Empire.

## 6. Fourth-century coins and their relationship to the stratified sequence

The 4th-century coins all belong to fort level 5 or later levels<sup>19</sup>. Apart from the two Tetrarchy coins, the period AD 294-318 is represented by Licinius (AD 310-315) (one *nummus*), Constantine I (seven *nummi*, one half-*nummus*), House of Constantine (one *nummus*) and three undetermined

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<sup>19</sup> Except for COIN0994. Since no 4th-century coin was found at level 4, the *nummus* found at level 2/3 must be regarded as an intrusive find.



coins dated to the start of the 4th century based on size, form and material. Coins from the period AD 294-318 are generally very rare. These coins are rather large and heavy and would not have been lost easily. The 3rd-century *antoniniani* and their copies, mainly those minted after c. AD 270, still circulated in these periods as small change (van Heesch 1998, 167).

The period AD 318-330 at the Oudenburg site is represented by Constantine I (two *nummi*), Constantine I/II (one *nummus*), Constantine II (one *nummus*), Crispus (one *nummus*), one *nummus* type *Victoriae Laetae Princ Per*, and one undetermined coin. Also this low coin loss is a general phenomenon, largely due to the same monetary reasons as the previous period (van Heesch 1998, 167).

In the following period, AD 330-340, the coin loss at the Oudenburg site increased (26 coins). The identified emperors are Constantine I (one *nummus Gloria Exercitus*-two standards, one undetermined *Gloria Exercitus*-one standard), Constantine II (two *nummi*) and Helena (one *nummus*). The *Gloria Exercitus* type is furthermore represented by twelve undetermined coins (with three issues 'one standard' and three issues 'two standard'). A peak in the period AD 330-340 is seen in the whole Roman Empire. Constantine I renewed the coin stock completely (AD 330-335) and for the first time since the last quarter of the 3rd century, low denominations in large numbers were again brought into circulation, which were of course more readily lost. The increasing coin supply was likely to have been a consequence of the firmer militarisation in the north of Gaul during this period. The garrisons of the newly built forts along the road between Bavay and Cologne, together with those in the renovated Rhine Limes forts, and the related administration, all needed a large coin supply (van Heesch 1998, 167).

The following strong dip – only one presumed *nummus Victoriae DDAUG Q NN*, possibly of Constantine II, can be assigned to the period AD 340-348 with certainty – is also a very general phenomenon in northern Gaul, *Germania* and *Britannia*, in contrast to the Mediterranean regions where these coins are found in large numbers. No copies were detected within the 4th-century coin assemblage at the Oudenburg site<sup>20</sup>, although the period AD 330-340 in northern Gaul, *Britannia* and the Lower Rhine region was characterised by a large copy peak, likely to be the result of a chronic deficiency of coins or a strong inflation. However, the phenomenon seems to be more prominent in the rural settlements than in the *vici* or military sites (van Heesch 1998, 169).

Only three coins of the Oudenburg assemblage can be assigned to the period AD 348-364, of which only one can be attributed to a specific reign: an AES-3 of Constantius II or Constans (*Fel Temp Reparatio*). Generally, in Gaul, *Britannia* and *Germania*, the coin loss remained very low, although there was a small increase. This period is characterised by coinage reformations, new denominations of higher value and a deficiency of small change (van Heesch 1998, 169).

It is only with Valentinianus and Valens (AD 364-378) that the bronze coin production increases again, and this is also visible, although to a limited extent, in the Oudenburg coin spectrum. Here, this period is represented by Valens (two AES-3 of which one *Gloria Romanorum*, two undetermined), Gratianus (one AES-3 *Gloria Romanorum*, one undetermined), two AES-3 *Securitas Reipublicae*. These coins confirm the considerable coin loss already noticed by van Heesch for Oudenburg based on the older finds at the late Roman military graveyard A and the surface finds at the location of the mid-Roman graveyard south of the fort (van Heesch 1998, 278). In this period, not all settlements show the same pattern. The same increase in coin loss is seen at the *villa* of Blandain, the presumed *villa* at Péronnes-lez-Antoing and the *civitas* capital Tournai (all in Belgium), and at the forts along the Rhine. This reflects probably the expanding minting related to the increase of troops and the active border strategy of Valentinianus I with the reinforcement of the Rhine Limes following the threats of the Alamanni (AD 366) and the invasions of the Franks and Saxons (AD 368-369) (van Heesch 1998, 170, 186). The defence system along the Bavay-Cologne road seems to have been occupied not more than very sporadically from the Valentinian

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<sup>20</sup> However, it is important to keep in mind that most of these coins were very badly preserved and that they could not be analysed in detail. It is possible that a thorough study would alter this result slightly.



period onwards - only Liberchies II knew a reoccupation after AD 380 – (Brulet 2008, 241) and all focus was now given to the *limes* borders.

Subsequently, the period AD 378-388 shows again a coin loss dip at Oudenburg, with only three coins: issues from Gratianus (AES-4 *Reparatio Reipub*), Theodosius I (undetermined *Reparatio Reipub*) and Magnus Maximus (AES-2). All sites in the North of Gaul show a low coin loss in the period AD 378-388, largely related to the high value of the AES-2 brought in circulation from AD 381 (van Heesch 1998, 170). At the Oudenburg fort, only two undetermined AES-4 can be assigned to the final period, AD 388-402. The coins from this period are in general very rare, due to a production decrease and supply problems resulting in a limited use. By contrast, the fort at Richborough yielded a remarkable huge amount of coins of the House of Theodosius (AD 388-402), no less than 22,822 *nummi* (Reece 1991), and even two *nummi* struck for Honorius (c. AD 421-423) can possibly be attributed to this site (Walton and Moorhead 2016, Section 3.3). The interpretation of these finds is still debated; either way they point to the very special function Richborough still had in the early 5th century.

The coin spectrum of the 4th century at the Oudenburg site largely follows the general monetary trends in the region of northern Gaul and reflects in general the small change policy of the Empire. It is therefore difficult to define possible interruptions in the occupation<sup>21</sup>. Only four coins of the 4th century can be related to fort level 5 based on stratified evidence with certainty: Licinius (*nummus*), Constantine I (*nummus*), *Victoriae Laetae Princ Per* (*nummus*), *Securitas Reipublicae* (AES-3). However, obviously all 4th-century coins found in the post-Roman levels or at the top of the Roman level mixed with deposits from the post-Roman level, are related to the occupation of level 5. The many late 3rd-century copies at this level can either be small change still circulating in the first decades of the 4th century or residual finds from the previous period. Based on the coinage, no interruption can be verified between levels 4 and 5.

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<sup>21</sup> It is only when the coin loss differs strongly from the general pattern, that peaks and dips in the occupation of a site can be derived (van Heesch 1998, 170).

## APPENDIX 10 - Samian wares at the south-west corner site

### 1. Introduction to the samian assemblage

During the 2001–2005 excavations at the south-west corner of the fort, 8972 samian fragments were collected<sup>22</sup>. This amount of material represents one of the largest quantities of samian found in the coastal region of northern Gaul. The more or less continuous occupation at the Oudenburg fort into the late Roman period allows us to interpret the evolution of the samian ware supply to this military site. From this point of view Oudenburg also provides a unique opportunity to gain insight into evolution of samian supply and use for this remote, North-Gaulish region. Samian studies for the 3rd and 4th centuries in the North of Gaul are indeed not well represented and comprehensive, in depth analyses of all samian wares, especially within a contextual framework, are lacking for military and civil sites along the Channel coast and in the hinterland. Because of the high rate of unidentifiable coins at the Oudenburg site, the samian pottery provides a very relevant alternative for a better understanding of the chronology of the fort occupation.

This samian study is the result of a close collaboration with W. De Clercq and J. Deschieter (cf. Vanhoutte *et al.* 2013a; 2013b). L. Bakker, W. Dijkman and P. Van Ossel took on the identifications of the late Argonne sigillata with roller-stamped decoration; G. Raepsaet and M.-Th. Raepsaet-Charlier clarified the graffiti.

The samian was studied first of all within its role as a provider of pure quantitative data, yielding relative proportions of different fabrics, types, functional groups, potter stamps, decorations and graffiti. In relation to this, the samian study also investigated the quality and residuality of the finds. Secondly the samian's potential was explored within a wider site-related and regional perspective of which the conclusions are included in Chapter V, Section V.3.7.1.

First, the methodology of the study and the general presentation and appearance of the material is described, followed by the general aspects of the spatial distribution of the samian. Subsequently, an overview of the represented fabrics and their characteristics is given. After a general overview of the functions represented by the samian, the plain wares are discussed in detail, ordered first by function, then by type, both in relation to their fabrics. The analysis of the samian stamps is followed by the study of the decorations, first the mid-Roman, then the late-Roman decorated bowls. After this analysis integrating form, type and fabric, the stratigraphic distribution and chronology of the samian assemblage is discussed. After a general description of the samian found at each fort level, detailed studies of samian key context assemblages respectively follow for each level. Subsequently a closer look is given to the reparations, re-uses and to the graffiti. Finally, an attempt is made to draw conclusions concerning the supply of the samian wares to the Oudenburg fort and the significance of this supply within the broader context of the Channel region. To enable this, the results from the Oudenburg fort are confronted with data known from other sites in the region.

Catalogues of the stamps and decorations accompany this analysis text; they form respectively Section 13 and Section 14 of this Appendix. When discussing identifications and datings of stamps and decorations, we refer to these catalogues in order to avoid unnecessary repetitions.

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<sup>22</sup> North-Gaulish samian derivatives are included. Although these products display a fabric and a surface layer clearly distinguishable from the classical samian products, their typology demonstrates that they should be considered in the same tradition, being the successors of the traditional samian wares. In contrast, the British samian imitations like the Oxfordshire and Much Hadham products were not included in this study; their technique fits in with that of the colour-coated wares and although their typology is often related to that of the samian wares through imitating several forms, it also shows a different repertoire and should therefore be considered as a separate group (Brulet *et al.* ((éd.) 2010, 264-266) however refer to them as sigillata productions).

## 2. Methodology and general presentation

Before a detailed inventory was initiated, all fragments were subjected to an intensive puzzling process in order to distinguish a maximum of cross joining sherds<sup>23</sup> and therefore the minimum number of individuals. First, the samian sherds were grouped into fabrics. Fresh breaks were systematically observed under the binocular microscope (X10-40) and compared to the Tomber and Dore (1998) and Bird (1993) fabric descriptions. The Tomber and Dore codes were used for the main fabric groups; where possible subgroups were identified according to the fabrics described by Brulet *et al.* (2010). A new code was created for the North-Gaulish fabric, NOG SA, using the same coding system as Tomber and Dore with characters 1-3 indicating the source area (Table 9).

<b>ARG SA</b>	Argonne samian
<b>BLW SA</b>	Blickweiler samian
<b>CG SA</b>	Central-Gaulish samian
<b>EG SA</b>	East-Gaulish samian
<b>LEZ SA</b>	Lezoux samian
<b>LG SA</b>	La Graufesenque samian
<b>LMV SA</b>	Les Martres-de-Veyre samian
<b>MAD SA</b>	La Madeleine samian
<b>NOG SA</b>	North-Gaulish samian
<b>RHZ SA</b>	Rheinzabern samian
<b>SG SA</b>	South-Gaulish samian
<b>TRI SA</b>	Trier samian

Table 9: Fabric codes of the samian occurring at the Oudenburg fort.

Once the potsherds were divided into fabrics, they were quantified using different approaches: sherd count, minimum numbers of individuals (MNI) and estimated vessel equivalent (EVE). Sherd count is the simplest quantification method and has been proven as reliable as other methods of pottery quantification commonly in use (Symonds and Haynes 2007). In this case all individual sherds were counted regardless of the number of joining sherds identified (except for recent breaks; these were not counted). The MNI was estimated by separating the sherds into groups representing individual vessels; by definition this quantification method is based on fabric and type. Therefore, this calculation was primarily based on rim sherds. For specific vessel types, bases and distinctive wall sherds were considered in defining individuals as well. As for the Drag. 37 bowls and the Chenet 320 bowls, respectively the decorated freeze fragments and the roller stamps were taken as primary criteria. After the rim diameter of the rim sherds was defined, also the EVE, the percentage of rim preserved, could be calculated<sup>24</sup>. This quantification method, very popular in Britain but hardly used on the Continent, does not explicit how many individuals the assemblage comprises (cf. Orton *et al.* 1993, 168-169, 172), but shows its value in a comparative analysis. The EVEs also give insight into the fragmentation degree of the assemblage; the smaller the EVE, the higher the fragmentation. Biases of each quantification method (cf. Symonds and Haynes 2007<sup>25</sup>), can be partly compensated by the comparison of their results. Since the calculation of the EVEs only yields restricted information on the actual size of groups, this quantification method has only been used in a limited way in the analysis.

For the classification of vessels, primarily the Dragendorff (1895) typology was used, complemented by some Curle (1911) types. The main Drag. types in the Rheinzabern pottery have their equivalents in the Ludowici repertoire (Ludowici 1908/1912); some specific types of dishes, bowls and beakers however are only known as Ludowici types. A few other forms were characteristic

<sup>23</sup> I would like to thank Norbert Clarysse, technical assistant at the Flanders Heritage Agency who helped with the puzzling of the fragments and who checked the complete collection very systematically and with great care in order to maximalise the number of cross joins.

<sup>24</sup> The EVE was only listed when the rim diameter, precisely or approximately, could be defined which implies that the sum of the EVEs is an underestimation.

<sup>25</sup> Symonds and Haynes (2007) list the advantages and disadvantages of each quantification method currently in use in Britain and on the Continent, but do not come to a comparative evaluation of the different quantification methods.

at the Niederbieber fort (Oelmann 1914). One dish only knows its specific parallel in the Gose (1950) typology, another in the Walters (1908) typology. One cup is defined as a Vertet (1972) (Ve) type dish; one dish is attributed to the Bet repertoire of Lezoux (Bet *et al.* 1989; Bet and Delor 2000). Two Drag. 46 cups can be specified according to the typology of Oswald and Price (1920) (O&P). Several beaker types are defined according to the Déchelette (1904) typology. The kantharos fragments were identified in accordance to Thomas (2001). Some 3rd-century East-Gaulish vessels are recognised as types defined at the 'Massenfund' site at Trier (Huld-Zetsche 1971). The late Roman samian forms find their types mainly in the Chenet (1941) repertoire, complemented by a type only defined by Brulet (1990), a type encountered at Alzey (Unverzagt 1916) and a characteristic profile from Mareuil (Bet and Delage 2008) and from Trier (Hussong and Cüppers 1972).

A representative selection of the samian vessels is illustrated; for well-represented types this selection has been kept rather large since it was found important to show the range of variations in rim profiles and rim diameters. The samian is shown according to form and type, furthermore divided by fabric. First, complete vessel profiles are represented followed by rim profiles classified according to the size of their rim diameter, from small to large. Only rims with an EVE of at least 10% are retained; rims with a smaller EVE are only shown when they yield additional information. When representative, bases and specific decorated wall sherds have been added.

### 3. General aspects of spatial distribution

#### 3.1. *The samian in the Roman and post-Roman levels*

In total 4841 samian sherds were, based on the stratified evidence, related to the Roman structures *in situ* (4132 records; 54% of the total amount of 8972 samian sherds)<sup>26 27</sup>, representing 1619 rims, 2564 wall sherds and 658 bases or base fragments; 43 complete profiles were counted. These fragments were recovered from a wide spectrum of features, such as waste-pits, ditches, gullies, construction slots, wells, floor levels and levelling, occupation and destruction layers. When the total assemblage is considered, this large amount of samian can be reduced to a minimum number of 1151 individuals<sup>28</sup>. The sum of the EVEs, regardless their fabric, form or type, concludes to a total of 120.91, pointing to a high degree of fragmentation of most of the material. The quality of the samian is very diverse and unequal: very well-preserved versus very abraded, complete profiles versus very fragmented material.

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<sup>26</sup> Included are 29 fragments deriving from the post-Roman or from a mixed level but cross joining with a fragment from the Roman level.

<sup>27</sup> For the benefit of a more practical processing of the data and for a better understanding of trends, it was chosen to include fragments from mixed levels to the latest level in question (*e.g.* a fragment from a level '1 or 2' is added to 'general level 2'). The same approach was used in the study of the other pottery categories.

<sup>28</sup> When the samian fragments are considered per level, the sum of the MNI's per level concludes to a total of 1472 individuals (see also further).

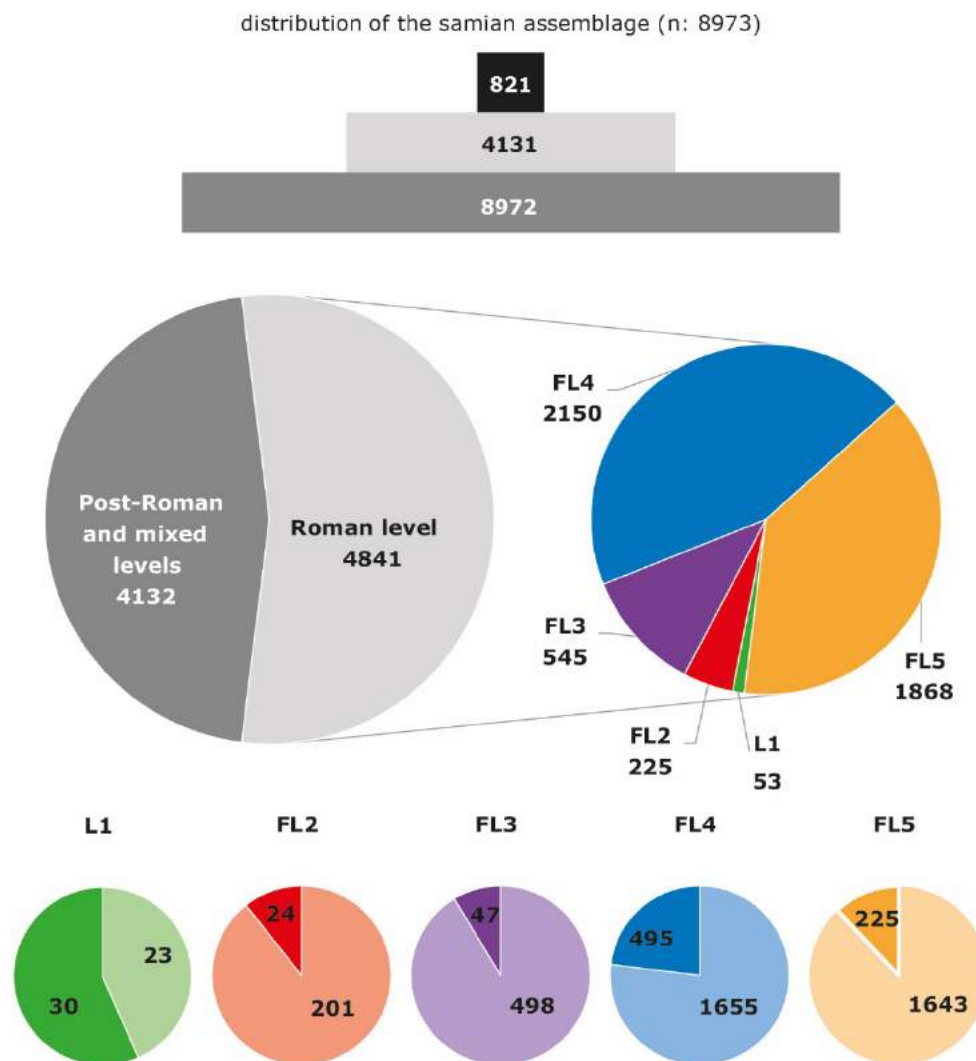


Fig 7: Visualisation of the proportions of samian at the south-west corner site: the total number of 8972 samian fragments versus the 4131 samian fragments recovered from the Roman level versus the 821 samian fragments as part of contextually, quantitatively and qualitatively reliable assemblages.

The remaining 4131 samian fragments (or 46% of the total samian) belong to the post-Roman features, the dark earth covering the site and the levels mixed with dark earth material (Fig. 7). These sherds can be considered as residual. Very noticeable is that 90.25% of all pottery recovered from the medieval dark earth consists of Roman ceramics. Within the latter, 11.7% is samian ware, illustrating the phenomenon of the on-site residuality. As already discussed, the dark earth covering the Roman site undoubtedly consists of earth brought in from outside the fort. The samian from this level, covering the 1st to 4th centuries, therefore not only reflects the military occupation but presumably also, and maybe even largely, the civil occupation surrounding the fort. Since so far it is unclear where this material originates from and since it is therefore uncertain which occupation it represents, it was decided not to integrate this samian portion in the present detailed study and to focus on clarifying the evolution of the samian of the military occupation. However, the residual samian material was considered in the puzzling process in order to investigate residuality of the samian of the Roman level of this location within the post-Roman level.

An exception was made for the Argonne roller-stamped sigillata which have been studied in their totality. Since these were only produced from c. AD 320 onwards and as the extramural occupation appears to have ceased in the late 3rd century AD, all Argonne roller-stamped sigillata are related to the military occupation at Oudenburg.

### 3.2. Residuality in the Roman level

An important degree of residuality manifests itself also within the Roman level. One of the key indicators are the different cross joins attested during the reconstruction of samian pottery

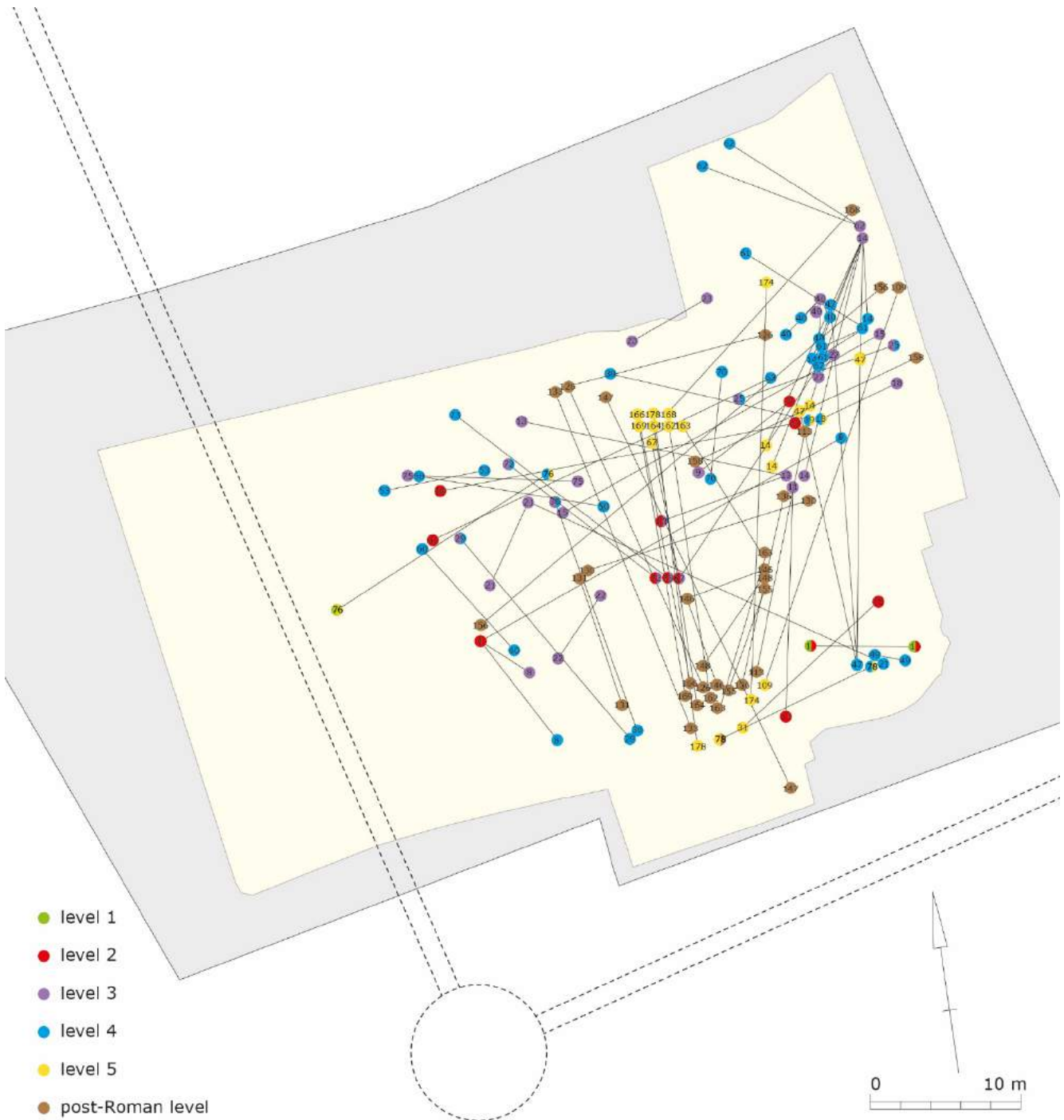


Fig 8: Visualisation of the lateral cross joining samian fragments stretching over a distance of at least 2 m.

individuals, directly visible when cross joining fragments covering a distance of more than a few metres are plotted on the site map (Fig. 8). Several fragments are scattered over different chronological levels, obviously the result of a long-lasting occupation and related building activities with associated soil interventions. Attention to this aspect of samian intra-site circulation has



already been drawn by Wallace (2006, with references to various German studies). The dispersion of samian fragments not only occurred vertically but also horizontally which might partly be the result of cleaning up the area from refuse or waste accumulations. In his study on the nature of the incidence of samian at British sites, Willis acknowledged the often high degree of residuality on sites. He however points to the pitfalls when studying samian wares. Samian often had a longer life-span than other pottery categories; they were looked after and were often even curated, which sometimes makes it difficult to distinguish the longer surviving vessels and the truly residual, dug-up pieces (Willis 2004, Chapter 5.7). Through the mapping of pottery cross joins at the Oudenburg fort, the high degree of these truly residual, dug-up pieces is demonstrated and visualised.

With these previous aspects in mind, to consider the samian assemblage as representative for the specific fort level in which it has been found, should be treated with much caution (as should also be the case for the other find categories). As a result, a valuable dating of the different fort levels has to rely on a selection of smaller but contextually firm key assemblages in which the residual factor can be recognised.

## 4. The production centres and their fabrics

### 4.1. The distribution of the samian fabrics in the Roman level

Several samian pottery fabrics were identified (Table 9). The fabric of a large number of sherds could not be determined since they were heavily burnt (1122 fragments or no less than 23.2% of the total sherd count; 156 MNI or 13.6% of the total MNI) or there was uncertainty as to the nature of their inclusions (7 fragments).

The general distribution of the fabrics of the 1151 recorded individuals reveals the predominance of the East-Gaulish material pointing to the importance of the 3rd-century samian import at the site (Tables 10 and 11; Fig. 9). With a minimum number of 808 individual vessels the amount of East-Gaulish material runs up to 70.2 % of the total assemblage, this is when the productions of Argonne (both the mid- and the late-Roman component) and La Madeleine (together good for 18.4% MNI of the total assemblage) are included. Tableware from Chémery-Faulquemont was not recognised at the south-west corner site, although one Drag. 37 bowl fragment at the north-east fort site (Kappellestraat-site (ET24)) could be attributed to Satto (Vanhouette *et al.* 2014, 209).

<b>SAMIAN FABRICS</b>	<b>n</b>	<b>%n</b>	<b>MNI</b>	<b>%MNI</b>	<b>EVE</b>	<b>%EVE</b>
LG SA	21	0,4	12	1,0	0,13	0,1
LMV SA	11	0,2	5	0,4	0,58	0,5
LEZ SA	365	7,5	95	8,3	10,17	8,4
CG SA	13	0,3	5	0,4	0,00	0,0
MAD SA	4	0,1	3	0,3	0,00	0,0
ARG SA	618	12,8	209	18,2	17,90	14,8
BLW SA	1	0,0	1	0,1	0,00	0,0
TRI SA	980	20,2	257	22,3	27,57	22,8
RHZ SA	1383	28,6	326	28,3	35,98	29,8
EG	47	1,0	12	1,0	1,54	1,3
NOG SA	269	5,6	70	6,1	7,01	5,8
undet.	7	0,1	0	0,0	0,00	0,0
burnt	1122	23,2	156	13,6	20,05	16,6
<b>TOTAL</b>	<b>4841</b>	<b>100,0</b>	<b>1151</b>	<b>100,0</b>	<b>120,91</b>	<b>100,0</b>

Table 10: Proportional distribution of the represented samian fabrics in the Roman level, based on sherd count, MNI and EVE.

SAMIAN FABRIC GROUPS	n	%n	MNI	%MNI	EVE	%EVE
South-Gaulish samian	21	0,4	12	1,0	0,13	0,11
Central-Gaulish samian (LEZ/LMV/CG SA)	389	8,0	105	9,1	10,75	8,89
North-East-Gaulish samian (MAD/ARG SA)	622	12,8	212	18,4	17,90	14,80
East-Gaulish samian (BLW/TRI/RHZ/EG SA)	2411	49,8	596	51,8	65,09	53,83
North-Gaulish samian (NOG SA)	269	5,6	70	6,1	7,01	5,79
undet.	1129	23,3	156	13,6	20,05	16,58
<b>TOTAL</b>	<b>4841</b>	<b>100,0</b>	<b>1151</b>	<b>100,0</b>	<b>120,91</b>	<b>100,00</b>

Table 11: Proportional distribution of the regional samian fabric groups in the Roman level, based on sherd count, MNI and EVE.

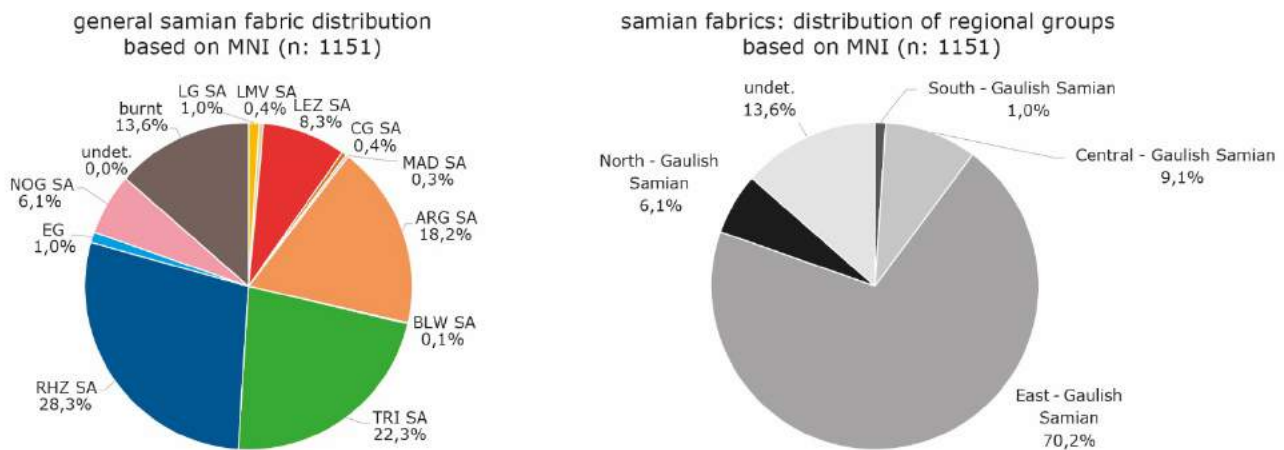


Fig 9: Proportional distribution of the individual samian fabrics (to the left) and the regional samian fabric groups (to the right) represented in the Roman level at the south-west corner site. Based on MNI.

The East-Gaulish predominance is largely generated by the products of Rheinzabern<sup>29</sup> with 40.3% and Trier with 31.8% seen in comparison to the East-Gaulish MNI total, respectively 28.3% and 22.3% of the total MNI.

The distribution of the samian fabrics in the Roman level has been calculated based on sherd count, MNI and EVE. As shown in the graph, their percentages conclude to the same conclusions in fabric distribution (Fig. 10). Apart from these proportional data, two important conclusions can be drawn. First, regardless the quantification method used, the respective fabrics show the same share and similar interrelationships within the totality of the assemblage. This is rather remarkable, since the MNI quantification is by definition based on fabric and type, while the EVE quantification is a generalising method, independent of type and fabric. Although the EVE percentages show the same results as the MNI and sherd count percentages, they are less valuable as counts *an sich*; according to the sum of the EVEs (120.91), this assemblage only comprises at least 121 individuals. Secondly, as the EVEs implicitly indicate the degree of fragmentation (the smaller the EVE, the higher the fragmentation) and with the EVEs following the same pattern as the MNI, one can conclude from the graph to a similar degree of fragmentation for the totality of the assemblage. Subsequently, this implies that – in average – all pottery has undergone similar disposal and postdepositional processes. With the preceding conclusions, it is important to bear in mind the size of the represented dataset. The fact that the correlation in the patterns shown by the three quantification methods is so clear, is largely due to the high numbers the samian ware represents.

While the general patterns and interrelationships shown by the sherd count, MNI and EVE percentages are similar, small deviations can be noticed. The Argonne fabric is characterised by a higher MNI percentage than the sherd count percentage, while the EVE percentage is in-between. This points to a fragmentation degree of the Argonne vessels that is slightly lower than for the other fabrics. This may partly be due to the hardness of the Argonne fabric, but can also partly be

<sup>29</sup> The author is well-aware of the location of Rheinzabern in *Germania Superior* but follows the wide-spread common attribution of this workshop to the East-Gaulish group (see e.g. Tomber and Dore 1998; Brulet *et al.* (réd.) 2010).



explained on a functional level: of the mortaria, the most robust samian vessel in the assemblage and thus the less breakable, 26.8% was made in Argonne fabric (mid-Roman or late Roman). A considerable difference in the percentages can also be noticed for the burnt vessels, with many fragments, for less EVEs and even fewer MNI. This can be explained by the nature of this group: burnt material is often more fragmented. Moreover, this group contains less rim or other diagnostic fragments since these could often, despite their burning, be assigned to a specific fabric (e.g. typical North-Gaulish vessel forms, roller-stamped Argonne fragments). This results in a lower MNI for the (undet.) burnt group comprising more body fragments in comparison to other fabric groups.

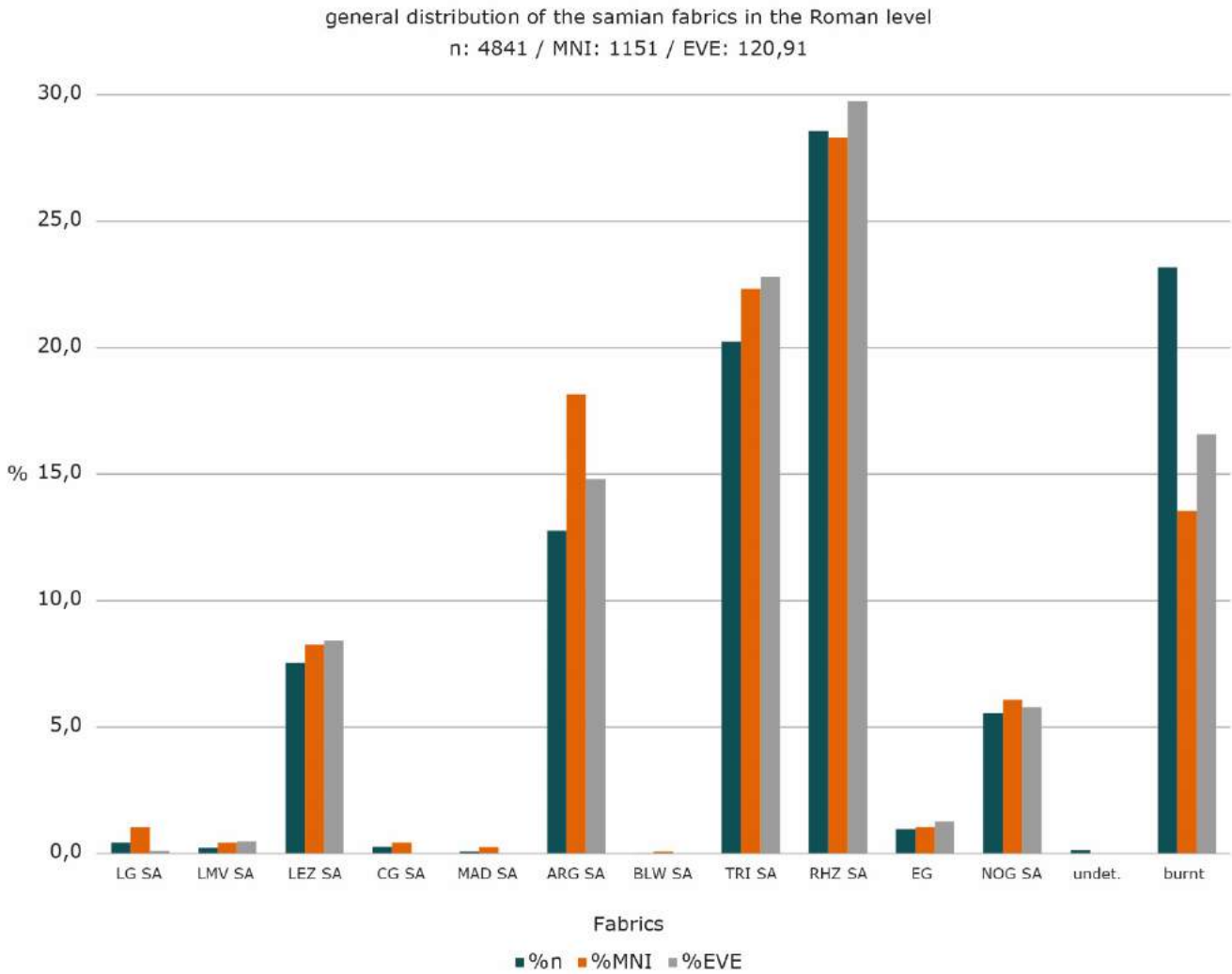


Fig 10: General proportional distribution of the samian fabrics in the Roman level, based on sherd counts, MNI and EVE.



Fig 11: La Graufesenque, Lezoux, La Madeleine, Argonne and Trier A, B and C fabrics of vessels from the south-west corner site. Selection of pottery sherds of which the fabric identification is secured by stamp or decoration (Photos by the author).





Fig 12: Rheinzabern, North-Gaulish and late Argonne fabrics of vessels from the south-west corner site. Selection of pottery sherds of which the fabric identification is secured by stamp, roller stamp, decoration or typical form (Photos by the author).

#### 4.2. Trier

When the total assemblage is considered, Trier samian accounts for 20.2% of the fragments, 22.3% of the MNI and 27.57% of the EVEs; the latter indicates a slightly lower degree of fragmentation than the other wares.

Trier produced samian from c. AD 130 until at least AD 275 (Cüppers 1990, 629-630; Vilvorder in Brulet *et al.* 2010, 193). Frey (2000) believes that while the production of mould-decorated forms in Rheinzabern stopped around AD 260, the Trier workshops were still producing Drag. 37's at that time, probably until the end of the 3rd century.

Within the Oudenburg Trier group (TRI SA) three different fabrics could be discerned (Fig. 11). Generally, these are characterised by abundant ill-sorted limestone, common black iron-rich grains and sparse fine silver mica (Tomber and Dore 1998, 41). Fabric 'TRI SA A' stands for the classic red fabric containing a high density of limestone inclusions. Stamps on plain vessels in this fabric found at the south-west fort site are identified as Iucundus v (SS20), Elenius i (SS19), Patruinus ii (SS24) and Dessius (SS17). Decorated vessels in this fabric are attributed to Werkstatt I (DS43), Werkstatt II 'spätere Ausformung' (DS49), Comitalis (DS 64) and Afer (DS68). The identified potters represent a wide chronological range from the Antonine period to the middle of the 3rd century. The fabric 'TRI SA B' represents a very pale, white to yellowish-cream coloured fabric with abundant to very abundant limestone inclusions (up to 1 mm), with a smooth fracture and a surface covered with a pale, dull orange-red poor quality slip. This fabric is very similar to the mid-3rd-century Trier fabric as defined by Bird (1986; 1993, 2) and by Huld-Zetsche (1971, 22, 85) for the Trier 'Massenfund'. This pale fabric seems different to the fabrics of the very latest Trier productions, an industry fading-out between AD 260-300, and described by Frey based on finds in Borg (Frey 2001, 43-44; 2000, 213-214). At Borg the latest Trier vessels are characterised by a dark-red to brown-orange coloured fabric. Stamps on plain vessels in the fabric TRI SA B found at the south-west corner site are identified as Drucaurus (SS18), Atilido (SS14); also one line-stamped vessel displayed the TRI SA B fabric (SS90). Decorated vessels in this fabric are recognised as Werkstatt II 'spätere Ausformung' (DS46, 47, 48), Maiiaus or related potter (DS51-53), Censor-Dexter (DS58), Afer, Dubitus-Dubitatus or Paternianus (DS75) and Primanus (DS76). All these potters can be dated from the later 2nd century onwards. When the Trier fabric could be specified, the TRI SA B fabric occurs twice as much as TRI SA A. A third fabric 'TRI SA C' is characterised by many limestone inclusions, large ovoid or straight voids, fragments of quartz, some silver coloured mica and a fairly high density of black inclusions, possibly iron oxides. This fabric was only attested at five individuals and is represented by a stamp of Minutus (SS22) and a decorated Drag. 37 by Censor-Dexter (DS55). Only one samian vessel at the Oudenburg fort site probably belonged to the late Roman Trier samian production. It concerns a decorated bowl of type Trier I, 8b, however, found completely burnt.

#### 4.3. Rheinzabern

Within the samian assemblage, the Rheinzabern wares account for 28.6% of the fragments, 28.3% of the MNI and 29.8% when the EVEs are considered.

It is generally accepted that the Rheinzabern workshops produced and exported samian on a large scale from the middle of the 2nd century until c. AD 260/270. The loss of a large market right of the Rhine due to the invasions by the Alamanni and the incursions of Germanic tribes over the Rhine had its repercussions on the pottery business and resulted in the cessation of the production of mould-decorated forms. Samian wares were still produced in the late 3rd and first half of the 4th century, but not for long-trade export (Bittner 1986; Cüppers 1990, 534, 537; Delage in Brulet *et al.* 2010, 188-190)<sup>30</sup>.

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<sup>30</sup> Production at Rheinzabern for local consumption continued however until c. AD 350 (Delage in Brulet *et al.* 2010, 190).

The Rheinzabern fabrics (RHZ SA) present themselves as a fairly homogeneous group, with an orange-brown to orange-yellowish fabric containing moderate to abundant well-sorted limestone often showing central voids (<3 mm) with very few other inclusions (Tomber and Dore 1998, 39) (Fig. 12). No clear differences could be discerned. The fabric seems close to Reuters' fabric 2-3 from the Regensburg-Grasgasse-group (c. AD 278-281) (Reuters 2005, 210-211) and appears similar to that recorded by Bird (1986, 144) at the mid-3rd-century London 'St. Magnus Ware House' site. The Rheinzabern products generally show a smooth, lustrous light-orange to orange-brown slip of good quality, but some vessels demonstrate a rather low quality with the slip not well applied. The latter remind one of the early 3rd-century samian from the London 'St. Magnus Ware House' site described by Bird (1986, 144) while she ascribed the glossy, better quality productions to the mid-3rd century (Bird 1993, 2).

#### 4.4. Argonne

The Argonne ware (ARG SA) stands for 25.9% of the MNI of all East-Gaulish wares or 18.2% of the total MNI (12.8% of the total sherd count; 14.8% of the EVEs); it represents both the 2nd-3rd century and the 4th century productions which are not distinguishable in fabric (Fig. 12).

The Argonne workshops of the High Empire produced for export from the middle of the 2nd century onwards and presumably continued to do so until around the middle of the 3rd century (Brulet in Brulet *et al.* 2010, 157), a wider date range than suggested by Chenet and Gaudron (1955, 211). However, Mitard *et al.* (1986) gave evidence from the Argonne kiln sites, demonstrating that at least some of the potteries continued to produce, mainly specialised in Drag. 45 mortaria (and as such covering the time-span until the beginning of the late Argonne productions).

The chronology of the late Argonne production is entirely based on the chronology of the roller stamps; a start date around AD 320 is generally accepted and the production continued until somewhere in the 5th century (Chenet 1941; Brulet in Brulet *et al.* 2010, 226).

The Argonne fabric is orange-yellow, sometimes with a slightly darker core, generally containing few visible inclusions (apart from the small translucent quartz grains) except for some larger, coloured quartz, sparse micas, limestones, foraminifers or iron oxides, all irregularly spread throughout the matrix (Fig. 12) (for a petrographic description: see Brulet in Brulet *et al.* 2000, 223-224; Tomber and Dore 1998, 34). It is less smooth than TRI SA and RHZ SA and it sometimes has more limestone inclusions with foraminifers, which is the case for example with the stamped vessel Libonus of Lavoye (SS11) (Fig. 11). The slip of the Argonne ware is smooth and lustrous orange-yellowish, of moderate to poor quality.

#### 4.5. Other East-Gaulish productions

The productions of La Madeleine (2nd quarter 2nd century – early? 3rd century AD), with a reddish, very micaceous and limestone-rich fabric (Vilvorder in Brulet *et al.* 2010, 149; Tomber and Dore 1998, 38), are scarcely present with 3 MNI (0.3% of the total MNI) (Fig. 11).

Only one individual from Blickweiler, with a fabric very rich in limestone (Tomber and Dore 1998, 35), could be recognised (DS42). At the north-east fort site (the Kapellestraat-site) the Blickweiler production equally only has one representative<sup>31</sup>. The export of Blickweiler products can generally be dated to AD 105-160 (Vilvorder in Brulet *et al.* (réd.) 2010, 173).

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<sup>31</sup> A base fragment of a dish or bowl revealed part of a stamp: SACI[, to be completed as SACIROF, which can be identified as 'die 2b' of the potter Saciro ii of Blickweiler, active in the period AD 125-160 (NOTS, vol. 8, 53; see for the context: Vanhoutte *et al.* 2014, 196, 198).



#### 4.6. The North-Gaulish so-called 'derived' samian ware

A separate group, formed by 70 MNI or 6.1% of the total MNI, represents the later Roman so-called 'derived' samian ware. This ware was produced in Northern Gaul from the middle or the second half of the 3rd century onwards, mainly prevailing during the 4th century (Brulet *et al.* 2000), and was amply present at the sites of Arras and Bavay in Northern France and Tournai in the south of Belgium (Brulet *et al.* 1994). Although these Gaulish productions are *sensu stricto* technically and qualitatively not part of the 'classic' samian productions<sup>32</sup>, ceramologists consider these as a further evolution of/from the samian. In the late Roman period they take over the role of the East-Gaulish potteries with the exception of those of the Argonne. Only a few workshops are known so far: La Calotterie and Les Rues-des-Vignes in France and possibly Tournai in Belgium (Brulet *et al.* 2010, 271-279; 'DTS.BE-NO')<sup>33</sup>. The North-Gaulish derivatives at the south-west corner site generally display a pale cream fabric with a coarse matrix containing abundant quartz grains and iron oxides (Fig. 12). In some cases a greyish core evolves to a more orange-brownish colour near the sherd surfaces. The surface of the bowls is covered with an orange to red-brown slip. The characteristics of most of the Oudenburg pottery fragments in question, as observed under the binocular, are very close to those of fabric B discussed by Brulet (2010e, 274-276; see also Brulet 1994) (DTS.BE-NOB). At least two sherds display the fabric C (DTS.BE-NOC) recognised at Tournai (Brulet 2010e, 276-277; see also Brulet 1994). Seven fragments (4 rims, 3 wall fragments: 4 MNI) can be distinguished as the by Brulet presumed Les Rues-des-Vignes productions (DTS.BE-RDV (Brulet 2010e, 277-279)). Of the North-Gaulish assemblage, seventeen fragments – all rim fragments or body fragments with roller-stamped decoration – were analysed by T. Delbey within the context of his doctoral thesis (Delbey *forthcoming*; Delbey *et al.* 2013, 470). His study uses geochemical data retrieved by X-ray fluorescence (XRF) and petrographical and mineralogical analyses retrieved by X-ray diffraction (XRD), all considered in relation to the roller stamps present in the sample. The fabrics of the samples of Oudenburg appear to have a different chemical and mineralogical composition compared to the productions of the Argonne, Île-de-France, Normandy and Champagne. The Oudenburg fabrics show a clay rich in kaolinite most likely originating at the Wealden facies, which outcrops at the Boulonnais region in the North of France and the Mons Basin in Belgium. The potteries of Desvres, to the east of Boulogne-sur-Mer, are situated on such an outcrop of this clay formation and are a possible candidate for production, but further research is needed to confirm this. This North-Gaulish assemblage of Oudenburg, identified as presumed Boulonnais productions, is similar to the group identified by Brulet (1994) as 'dérivées de sigillée du Nord-Ouest' and cover his fabrics B and C (see before) recognised under the binocular (pers. comm. Thomas Delbey; Delbey *forthcoming*). As will be seen further, the NOG SA category only represents a very limited repertoire with the mortarium as its most frequent form.

One fragment of a Carm 5 should be seen separately. Its fabric (DTS.HE-NE (Brulet 2010e, 269)) assigns it as an isolated find of the mid-Roman sigillata derivative production likely originating from the region Bavay-Famars (Brulet 2010e, 270).

#### 4.7. The Central-Gaulish productions

The Central-Gaulish ware covers only 9.1% of all samian individuals retrieved from this fort sector (105 MNI), in first instance pointing to a rather low supply of samian in the 2nd century. Tableware from Les Martres-de-Veyre is very sparsely represented with only 5 MNI (0.4% of the total MNI). This production, of which the export can be dated between c. AD 90 and 160/170 (Delage 2010, 126-127; Terrisse 1968, 22), is characterised by a red, calcareous fabric with a very dense and well-fired clay matrix and a red, shiny slip (Tomber and Dore 1998, 30).

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<sup>32</sup> In this sense we should also refer to the British imports of which the typological repertoire was inspired by the samian forms such as the Oxfordshire, Much Hadham and Pevensey wares. Based on their affinity with the colour-coated wares, the author decided to consider them as part of that pottery category.

<sup>33</sup> The on-going doctoral research by T. Delbey searches for the identification of the origins of productions within the North-Gaulish samian group (Delbey *forthcoming*).

The Lezoux fabrics dominate the Central-Gaulish assemblage with at least 90.5%<sup>34</sup> (95 MNI or 8.3% of the total MNI). Apart from two Drag. 37 bowl fragments (1 MNI) displaying the paler TS-LX3 fabric – both belong to level 1 of the earthen rampart at the south-west corner site -, all Lezoux vessels are in the TS-LX4 fabric defined by Delage (2010, 120-125) and dated to the maturity production at Lezoux (AD 140-240) which correlates with the potter stamps found on these vessels (SS1 to SS6: Albuçius ii (AD 145-175); ?Carant-Don- (AD 160-200); Cintusmus I (AD 140-180); Magio i (AD 160-200); Pugnus ii (AD 135-165); Sabinus viii (AD 160-200)). This fabric is coloured pale red-brown and contains various ill-sorted inclusions amongst which are silver mica, moderate to abundant limestone and black to brown iron-rich grains (Tomber and Dore 1998, 32) (Fig. 11). The vessels show a red-brown, glossy slip.

While the cessation of imports from Lezoux has generally long been dated to c. AD 190-200 (see e.g. Bird 1993, 1), Delage has evidenced a continuation of production until c. AD 240 (Delage 2010, 125), a date confirmed by King (2013, 123). In his study on the incidence of samian at British sites, Willis demonstrated that Lezoux samian appears frequently in 3rd-century (and later) deposits (see also Wallace 2006). Willis concluded that at some sites the Lezoux products are residual, but that at others it seems that a considerable number of Lezoux samian was still in use in the 3rd century (Willis 2004, Chapter 5.8.3).

The significant share of Lezoux products in the 3rd century at the Oudenburg fort (30.7% at level 2, 13.7% at level 3, both based on MNI), difficult to explain as totally residual material, confirms that the Lezoux export to Oudenburg continued in the first half of the 3rd century.

#### 4.8. The South-Gaulish productions

Finally, the samian assemblage contains a negligible quantity of South-Gaulish ware. These fragments, all identified as La Graufesenque productions, stand for 12 MNI or 1.0% of the total MNI. The La Graufesenque fabric contains abundant, small limestone inclusions, sparse fine silver mica and rare, but very distinctive, elongate voids characteristic for the fabric (Tomber and Dore 1998, 28) (Fig. 11). The fragments originating from La Graufesenque, of which the production is generally dated to c. AD 20-120 (Delage in Brulet *et al.* 2010, 71) are to be considered as residual finds dug up from civil settlement features predating the fort.

## 5. The functional spectrum of the samian at the Oudenburg fort

In terms of function (Table 12; Fig. 13 and 14), the dishes/platters/shallow bowls dominate the spectrum with a MNI of 466; that is no less than 40.5% of the total MNI, which is not surprising for a peripheral fort area where the soldiers lived and worked. One can assume that every soldier had his own samian dish.

functions in MNI	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL	%MNI	
BEAKER/VASE/JUG			1			7		5	13	1			27	2,3	
KANTHAROS								1					1	0,1	
BOTTLE								1				1	2	0,2	
FLAGON									1				1	0,1	
CUP	2	1	28	2		7		27	20	3		14	104	9,0	
COLLARED BOWL		1	4	1		11		5	6	1	4		10	43	3,7
DECORATED BOWL	8	1	14		2	79	1	54	91	2	7		10	269	23,4
BOWL WITH BARBOTINE DECORATION								1	3					4	0,3
DISH/SHALLOW BOWL	2	2	42	2	1	40		118	162	4			93	466	40,5
MORTARIUM			6			62		45	30	1	59		28	231	20,1
gritted dish						1								1	0,1
undetermined form						2								2	0,2
<b>TOTAL</b>	<b>12</b>	<b>5</b>	<b>95</b>	<b>5</b>	<b>3</b>	<b>209</b>	<b>1</b>	<b>257</b>	<b>326</b>	<b>12</b>	<b>70</b>	<b>156</b>	<b>1151</b>	<b>100,0</b>	
<b>TOTAL%</b>	<b>1,0</b>	<b>0,4</b>	<b>8,3</b>	<b>0,4</b>	<b>0,3</b>	<b>18,2</b>	<b>0,1</b>	<b>22,3</b>	<b>28,3</b>	<b>1,0</b>	<b>6,1</b>	<b>13,6</b>	<b>100</b>		

Table 12: Functions versus fabrics in the samian of the Roman level at the south-west corner site.

<sup>34</sup> Of some Central-Gaulish vessels no further fabric identification was possible.

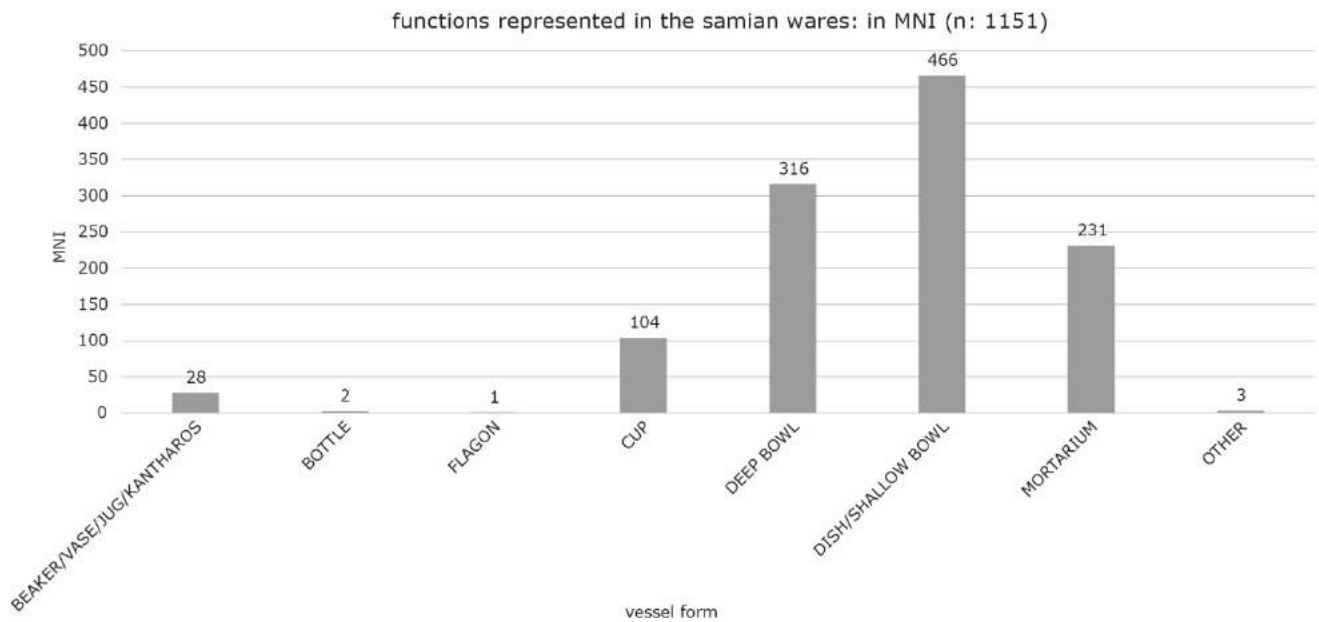


Fig 13: Functional distribution of the samian wares in the Roman level at the south-west corner site.

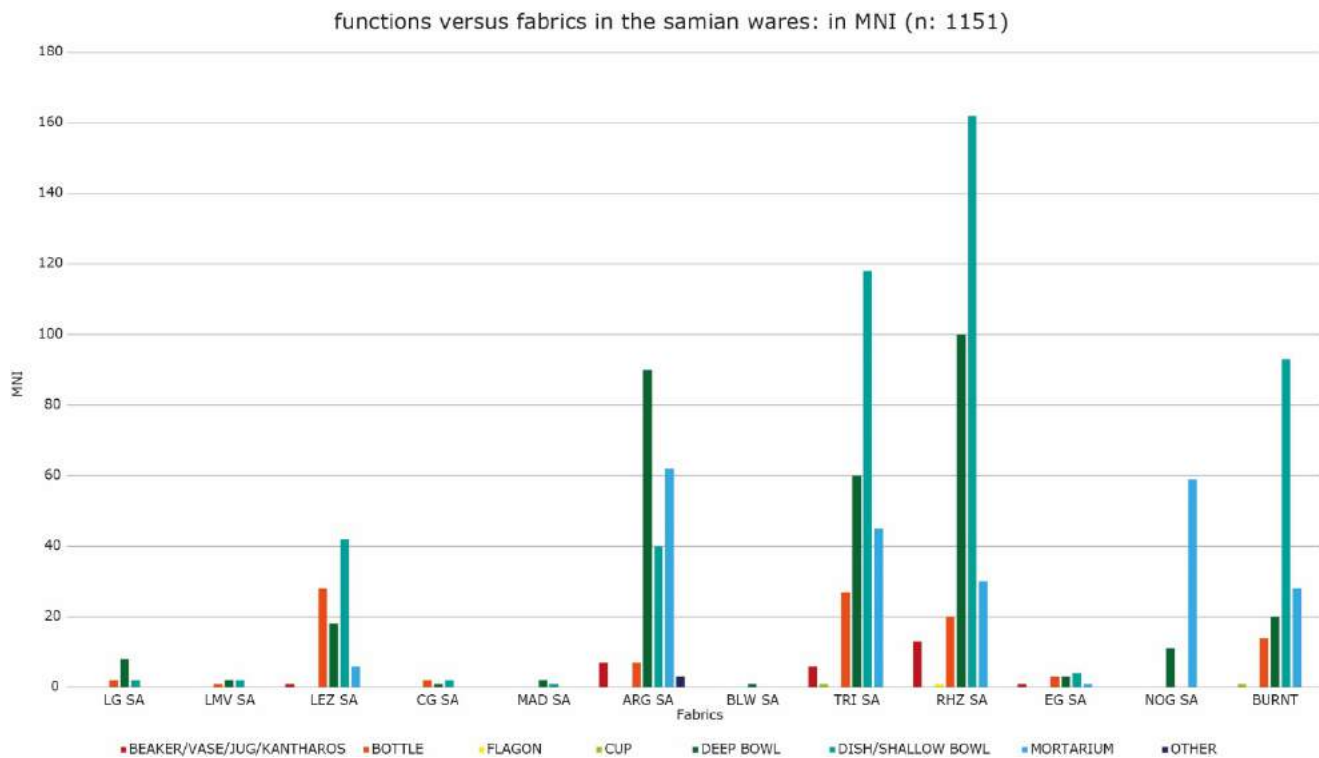


Fig 14: Functional distribution of the samian wares in the Roman level at the south-west corner site, according to fabrics, in MNI.

The second distinguishable group of recipients are the deep bowls (incl. the decorated bowls), accounting for at least 316 individuals in total, representing 27.5% of the total MNI. Within the assemblage of the deep bowls, the decorated ones (269 individuals) take up the largest proportion with 85.1% or 23.4% of the total MNI. Thereby, the decorated bowls account for 21.6% of the total MNI, 20.9% when only the mid-Roman samian is considered (213 MNI). The collared bowls, with 43 MNI, only represent 13.6% of the bowls assemblage, or 3.7% of the total MNI, while the East-



Gaulish bowls with barbotine freeze are scarcely present with only 4 MNI (1.3% of the MNI of the deep bowls).

The decorated bowls are followed in number by the mortaria, representing 231 individuals or 20.1% of the total MNI, and therefore particularly well-represented in the Oudenburg assemblage. The specific function of samian mortaria is still subject to debate. Several scholars consider these vessels as highly suited for the production of dairy products, like curds and whey, yoghurt, cheeses; others point to a possible industrial or even ritual use (see Willis 2004, Section 8.4.4, with references). The large number of mortaria attested at the Oudenburg site may point to an evolution into a more multi-functional vessel (see further).

Another significant form in the samian vessel group at the south-west corner site are cups, accounting for 9.0% of the total MNI or 104 individuals. Beakers, vases and decorated jugs only represent a small assemblage with in total a minimum of 28 standing for a minority of 2.4% of the total vessel MNI. Represented in EVEs, the beakers only count for 5.65. Next to these main groups, the assemblage hardly contains any other forms. The kantharos, the bottle and the flagon are all forms to which only one individual can be assigned with certainty.

When only the mid-Roman assemblage (1020 MNI) is considered separately from the late Roman individuals, the main suppliers for samian ware to the Oudenburg fort were the Lezoux, Argonne, Trier and Rheinzabern potteries (Fig. 15). In the case of the plain wares, the Lezoux and Argonne workshops represent respectively 10.0% and 14.9% of the supply, Trier and Rheinzabern dominate with respectively 25.2% and 29.1%, with a minor predominance for the Rheinzabern potters (Fig. 15, to the left). A slightly different image is offered by the mid-Roman decorated wares (Fig. 15, to the right). Although the East-Gaulish potteries take the lead again, the Rheinzabern workshops are now prevailing in the supply of decorated wares. While Lezoux and Argonne count for respectively 6.6% and 13.1% of the MNI of the decorated wares, Trier now represents 25.4% and Rheinzabern no less than 42.7% of the decorated vessels.

The commonest plain forms in the Oudenburg samian assemblage are the dishes Drag. 36 and 31, the cup Drag. 33 and the mortarium Drag. 45, an assemblage pointing mainly to the 3rd century. Bird (1993, 8) demonstrated that the Drag. 31, 33 and 45 vessels were the most common East-Gaulish plain forms in *Britannia*.

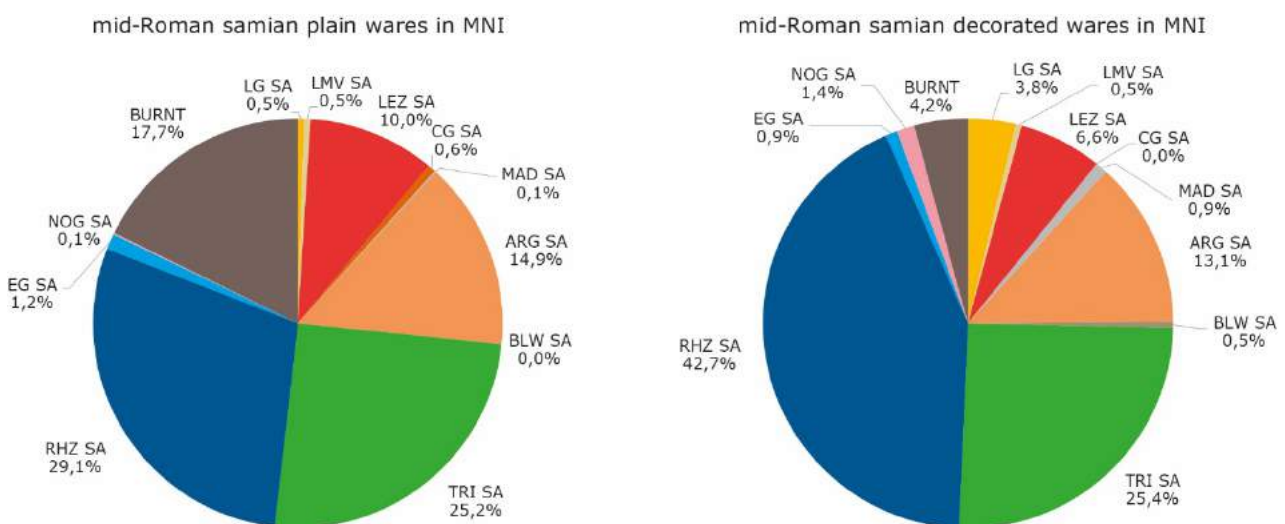


Fig 15: General distribution of the mid-Roman samian wares according to fabrics based on MNI. Plain wares versus decorated wares.

The samian spectrum at the Oudenburg fort, especially for the 3rd century characterised by a wide variety in forms, fits in well with general patterns observed at military sites. Willis (2005; 2011) demonstrated that at military sites in Britain the dish/platter/shallow bowl category takes up c.

40% in the samian assemblages, while the decorated bowls form the second most common group with c. 27%, closely followed by the cups with 25.6% (Willis 2011, 209-212; Willis 2005, Chapter 8.2.2). Cups are also a significant group at the Oudenburg fort, although with 9.2% largely behind the general percentage observed in *Britannia* which probably reflects the comparatively late start date of the earliest occupation at the Oudenburg fort. A striking difference with the general patterns shown by Willis is the large amount of samian mortaria at the Oudenburg fort (20.5% of the total samian MNI or 16.6% of the mid-Roman samian assemblage versus only 0.1% at the British military sites (Willis 2011, 211: Fig. 2)); again this will be a function of the date range emphasis of the site. At the Caister-on-Sea fort for example, the mortaria percentages are indeed in line with those at Oudenburg (cf. Section 12 of this Appendix).

The samian assemblage recovered from excavations in 2005 at *Forum Hadriani* (Voorburg), capital city of the *civitas Cananefatium* located near the North Sea, and covering a date range from AD 120/125 to the middle of the 3rd century (study by van Diepen and Niemeijer (2011)), in fact reveals – although not a military site – similar functional proportions as for the Oudenburg assemblage. The dishes represent 33.9% of the total samian sherd count, the decorated bowls account for 23.3%, the cups for 15.4% and mortaria for 12.4%. Van Diepen and Niemeijer also point to the high percentage of the mortaria and mention similar proportions in settlements of the later 2nd and 3rd centuries in the vicinity.

The popularity of mortaria (including the coarse examples) in the north of Gaul and Britain in the later Roman period in comparison to the Mediterranean world can refer to differences in the diet, but may also imply that the mortarium rapidly became a multipurpose vessel. Willis suggests that the mortarium was '*perhaps a widely familiar accoutrement of many lives*' (Willis 2005, Section 8.4)<sup>35</sup>.

In the late Roman period, the supply to the Oudenburg fort was mainly taken over by the late Argonne and the North-Gaulish potteries. While most of the decorated bowls were made at Argonne, the North-Gaulish potteries were mainly responsible for the supply of mortaria.

## 6. The plain wares: functions, types and their supply

### 6.1. Dishes and shallow bowls

In the category of the dishes, the Drag. 36 (Lud. Te in the Rheinzabern repertoire), a form which became more common from the late 2nd century onwards (Webster 1996, 46), appears to be the most successful type (37.9% of the dishes MNI (467) with an EVE of 26.10), alongside the Drag. 31 (26.6% of the dishes MNI and an EVE of 15.01) (Table 13).

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<sup>35</sup> The functionality of the Oudenburg contexts treated here, which are only a small part of the fort, obviously also determines the composition of the samian assemblage (as other find assemblages). This south-west corner was not at every level occupied by soldiers' barracks and other functional implementations obviously yield a different find spectrum. For example, no less than 114 mortaria or 53.5% of the mid-Roman mortaria assemblage can be attributed to fort level 4. Their presence at the workshop area could possibly be partly related to the reparation of these vessels, which were obviously of importance to the soldiers.

DISH TYPES IN MNI	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL	%MNI
Bet 32			1										1	0,2
Curle 15						1						1	2	0,4
Curle 23			1										1	0,2
Walters 79			1										1	0,2
Drag. 18												1	1	0,2
Drag. 18/31	1	1	21	1	1	4		2	8	1		2	42	9,0
Drag. 18/31 or 31			7	1		11		5	9			5	38	8,1
Drag. 31 (R)			6			11		42	45	1		19	124	26,5
Drag. 32 (R)			1			9		9	22			17	58	12,4
Drag. 36 (R) (/Lud. Te)		1	3			2		53	69	2		47	177	37,9
Drag. 42	1		1										2	0,4
Gose 138								1					1	0,2
decorated 'dolphin' dish									1				1	0,2
small dish Lud. SchF / NB 11b / Massenfund 6a								3				1	4	0,9
Lud. Tb									2				2	0,4
Lud. Th related								2					2	0,4
Lud. Th/II									1				1	0,2
Lud. Tl									2				2	0,4
Lud. Tl' / Massenfund 8b								1	2				3	0,6
Lud. To'									1				1	0,2
Chenet 304						1						1	2	0,4
Chenet 306						1							1	0,2
TOTAL	2	2	42	2	1	40	0	118	162	4	0	94	467	100,0
%MNI	0,4	0,4	9,0	0,4	0,2	8,6	0,0	25,3	34,7	0,9	0,0	20,1		100,0

Table 13: The represented dish types and their fabrics, in MNI.

The Drag. 36 was mainly supplied by the Rheinzabern and Trier workshops (Plate LVIII-LXVI), respectively counting for 39.0% and 29.9% of the total Drag. 36 MNI. Only minimal three individuals were made in Lezoux fabrics (1.7%), two in Argonne ware and one at Les Martres-de-Veyre (Plate LVIII). The Rheinzabern and Trier Drag. 36 dishes display a large variety, not only in profile but also in rim diameter as well as in the characteristic barbotine leaf decoration on the rims (Plate LVIII-LXVI). Sometimes the traditional leaf ornament is replaced by a more complex motif, like *e.g.* on the Rheinzabern dish Plate LX, 25, an element that occurs in the 3rd century (Bird 1993, 6). The rim diameter of the Rheinzabern dishes ranges between 170 and 300 mm with 40% of the individuals covering the size between 240 and 270 mm, with 240 mm as most popular size (represented eight times) (Fig. 16). The Trier Drag. 36 dishes show a similar size range (except for one exceptional 340 mm wide individual), the rim diameters being equally spread but with a slight preference for sizes between 200 and 260 mm (53% of the individuals). The rouletted Drag. 36R (or Lud. TeR) is hardly represented in the Oudenburg assemblage. Only one individual could be distinguished, a Rheinzabern product (Plate LXI: 31). An interesting aspect is offered by one Trier (Plate LX: 20), one Rheinzabern (Plate LX: 23) and two burnt dishes (Plate LXVI: 74 and 76), all clearly of the Drag. 36 type, but displaying a (undamaged) plain, smooth rim without the characteristic barbotine leaf decoration.

As for the Drag. 31 type, a dish/shallow bowl form appearing in the mid-2nd century (Webster 1996, 35), the Rheinzabern and Trier potteries again appear to have been the main suppliers for the Oudenburg fort, now in almost equal shares: Rheinzabern representing 45 individuals, Trier 42, or respectively 36.3% and 33.9% of the total Drag. 31 MNI (Table 13). The Rheinzabern assemblage shows the equivalent form type Lud. Sa and Sb. The Argonne workshops also supplied this type to the fort, albeit in minor quantities (11 MNI; 8.9% of the total Drag. 31 MNI). The limited number of Lezoux Drag. 31 dishes (6 MNI; 4.8% of the total Drag. 31 MNI) emphasises the late date of this type.

Drag. 36 rim diameters

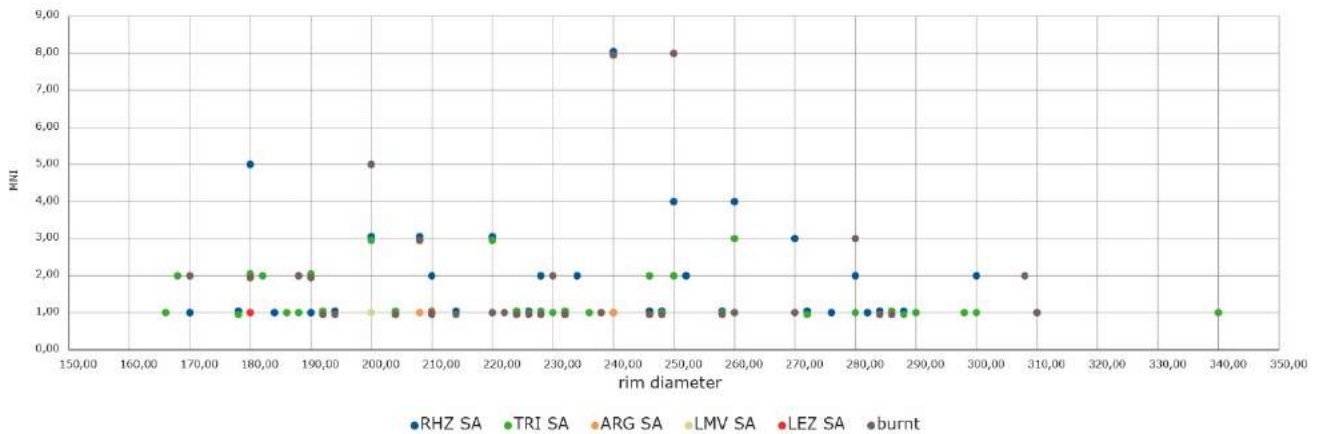


Fig 16: The rim diameters of the Drag. 36 dishes. Comparison between the different fabrics.

Like the Drag. 36 dishes the Drag. 31 type displays a wide size range in rim diameters (Plate LXVII-LXXI; Fig. 17). The Argonne Drag. 31 dishes range between 194 and 300 mm. The rim diameters of the Rheinzabern Drag. 31 dishes range from 180 to 290 mm, with one exceptionally small dish of 166 mm and one exceptionally large one of 322 mm. As for the Trier Drag. 31 dishes the rim diameters vary largely, from 158 mm to 296 mm, with a preference for the sizes between 190 and 230 mm. Rouletting was apparently more common for the Drag. 31 dishes at Oudenburg than for the Drag. 36, although they still represent only moderate quantities. At least one Argonne (not illustrated) and two Lezoux Drag. 31R were counted (Plate LXVII: 5-6); seven Trier Drag. 31 base fragments (two illustrated: Plate LXIX, 39-40) and thirteen Rheinzabern bases (three illustrated: Plate LXX, 61-63), belonging to a minimum of three individuals, showed rouletting. Since the Trier base fragments could not be related to rims, it is unclear how many MNI these represent.

Drag. 31 rim diameters

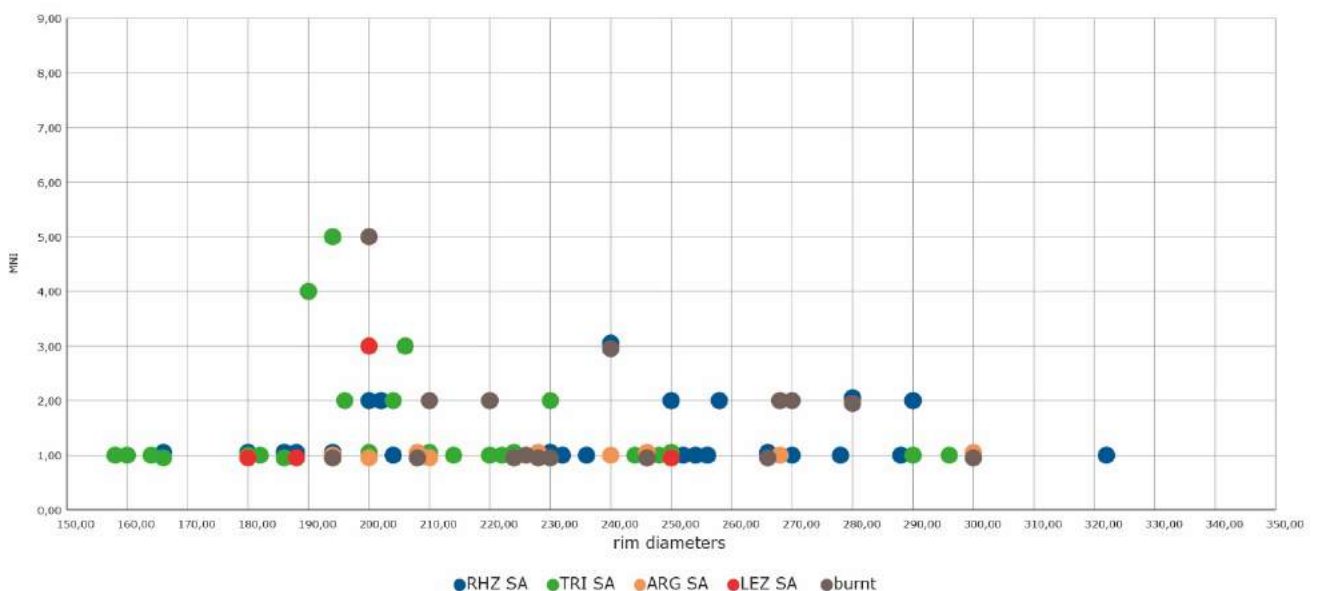


Fig 17: The rim diameters of the Drag. 31 dishes. Comparison between the different fabrics.

The Drag. 32 dish was clearly less important and only represents 12.4% (58 MNI) of the total dish MNI and an EVE of 6.24 (Plate LXXII-LXXIII) (Table 13). This form was characteristic from the late 2nd century onwards, but mainly in the 3rd century (Webster 1996, 44; Oswald and Pryce 1920, 205-206; Dürkop and Eschbaumer 2007, 112-144). Distribution patterns of this dish type have revealed that its production was not important at all potteries (Zanier 1992, 132-135). The Drag.

32 dishes (or Lud. Ta in the Rheinzabern repertoire) from the Oudenburg fort were mainly produced at Rheinzabern (22 MNI; 37.9% of the Drag. 32 MNI). The Argonne and Trier potteries supplied this type in equal, moderate shares, both counting for 15.5% of the total Drag. 32 MNI. As for the previous dish types, the rim diameters of the Drag. 32 dishes show a wide range (Argonne: 154-250 mm; Trier: 160-268 mm; Rheinzabern: 154-268 mm). The Drag. 32R type was attested only once, in a Trier fabric.

The Drag. 18/31 dish is represented by minimal 42 individuals or 9.0% of the dish MNI and an EVE of 4.52 (Plate LXXIII: 2-9; Plate LXXIV) (Table 13). Half of these dishes is made in Lezoux fabrics (21 MNI; 50.0% of the Drag. 18/31 MNI) (Plate LXXIII: 2-9). Only a minor quantity of Drag. 18/31 dishes was made at the Rheinzabern potteries (8 MNI or 19.0%) (Plate LXXIV: 18-21), they are scarcely present in Argonne ware (4 MNI or 9.5%) and were hardly supplied by Trier (2 MNI) (Plate LXXIV). However, these counts may have been higher since of no less than 38 individuals (8.1% of the dish MNI) it cannot be determined whether they are type Drag. 18/31 or the later Drag. 31. Only one burnt Drag. 18 was identified, a residual find in a much later context (Plate LXXIII: 1).

Together, the types Drag. 18/31, 31 (incl. 18/31 or 31), 32 and 36 account for 439 MNI or 94.0% of the dish MNI. Other types represent only minor quantities of one, two or three MNI. The Drag. 42 type knows at least one individual in a South-Gaulish fabric (Plate LXXV: 1), clearly a residual find, and one variant in a Lezoux fabric (with horizontal rim) (Plate LXXV: 2). From the Lezoux potteries, dishes Walters 79 (Plate LXXV: 3) and Curle 23 with rosette stamp (Plate LXXV: 4) can be mentioned, each present with one individual. The Curle 15 type was encountered only once, in Argonne ware (Plate LXXV: 5). The East-Gaulish potteries added some more rarely produced vessels to the classical repertoire, most of them only listed in the Ludowici repertoire. The very small dish type Lud. SchF, also recognised as type NB 11b or Massenfund 6a, a type found in the mid-3rd century Massenfund context at Trier, is represented three times in the Trier fabric (two illustrated: Plate LXXV, 6-7). Of one more individual the fabric was burnt (Plate LXXV: 8). For the introduction of this type, Bird (1993, 12) concludes to a date in the second quarter of the 3rd century. Two Trier dish individuals are close to the type Lud. Th (Plate LXXV: 9-10). One rim profile can be identified as a Massenfund 8b, for which the equivalent type can be found in the Ludowici repertoire as Lud. Ti' (Plate LXXV: 11). In Rheinzabern ware one dish is identified as the type Gose 138, with similarities to Lud. Th (Plate LXXV: 15); one shallow bowl comes close to Lud. Ti (Plate LXXV: 16) and one rouletted rim fragment belongs to a Lud. To' (Plate LXXV: 14). The type Lud. Tb is represented by two MNI, one small and one larger version (Plate LXXV: 12-13). Two Lud. Ti' dishes complete this Rheinzabern assemblage (Plate LXXV: 17-18).

For the wall fragment of an Argonne dish near to form Drag. 36 but clearly gritted, no parallels were found (Plate LXXVI: 1). This vessel appears to combine the functions of a dish and a mortarium.

A remarkably decorated dish completes the dish repertoire at the Oudenburg site (Plate LXXVII). This unique piece among the pottery finds concerns a deep dish, largely made up of burnt fragments which were scattered over a number of features. The shape of the deep dish can be assigned to the typology of the plain dishes as it was established by Ludowici and it has strong morphological affinities with his dish-type known as Teller c or t'. Even more than by the quality of its production this vessel distinguishes itself by the combination of three decoration techniques, likely referring to the repertoire of highly decorated precious metal plates. The decoration of this dish blends different ornamental techniques already applied to samian pottery from the Antonine period onwards but very trendy and more extensively applied on samian pottery during the 3rd century. The flaring rim-part shows an incised or 'cut-glass' decoration combined with scrolls and other motifs in trailed thick slip, generally referred to as barbotine decoration. In the concave centre of the dish a sort of flower medallion is depicted enclosing a figure-type resembling a dolphin. With this kind of vessel the Rheinzabern potter did not introduce anything new into the pottery market: since ancient times the world of Neptune had always been an inexhaustible source of inspiration for potters and the use of a fish or marine creature in the central part of plates or dishes also occur in metal and especially silver tableware during the 2nd and 3rd centuries (cf. e.g. Strong 1966, 172-173, Pls. 48B-49). No exact parallels for the Oudenburg dish could be found; however, dishes with barbotine

decoration applied to the floor are not unknown. Bird recorded and discussed ten such dishes, unusual by their form and the barbotine floor decoration showing animals, birds or a floral motif (Bird 1998). According to Bird, decorating the floor of the vessel with a raised motif may have been inspired by the earlier series of the African Red Slip Ware from the first half of the 3rd century where this was a popular motif (Bird 1998, 155). The identifiable dishes from the study by Bird represent the Drag. 36 form or a variant and they can all be attributed to the Rheinzabern workshops. Bird concluded to a date in the first half of the 3rd century for this group of dishes, and probably within the second quarter (Bird 1998, 155). This date is in line with the find context of the Oudenburg dish, which was found at fort level 3 to be dated around the middle of the 3rd century. The Oudenburg dish distinguishes itself however from the dishes recorded by Bird in combining not two but three decoration techniques, with besides the fine barbotine rim decoration and the appliqué motifs on the floor of the vessel, also the cut-glass technique.

This particular dish from the Oudenburg fort gives evidence of the high degree of inventive skill and delicate craftsmanship of the Rheinzabern samian potters. Individually decorated vessels like this indicate that the military not only had easy access to the more common forms of tableware, like plain dishes and cups, but were also able to obtain the more exquisite and rare pieces from a production centre like Rheinzabern.

In contrast to the mid-Roman dish spectrum, the dish form appeared to be no longer popular at the Oudenburg fort in the sigillata wares of the late Roman period, with only three MNI. Only the type Chenet 304, with one Argonne and one burnt individual (Plate LXXVI: 2-4), and a possible type Chenet 306 could be recognised in the assemblage.

## 6.2. Mortaria

With at least 231 individuals or 20.1% of the total MNI, the mortarium played an important role in the samian spectrum at the Oudenburg fort (Table 12). The most popular mortarium form at the Oudenburg fort site was the Drag. 45 with its upright rim-part and characterised by a moulded, open-mouthed lion's head spout (150 MNI or 64.9% of the total mortaria MNI of 231; with an EVE of 15.17) (Table 14; Plate LXXVIII-LXXXIV).

MORTARIUM TYPES IN MNI	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL	%MNI
Drag. 43			1			3		3	8				15	6,5
Drag. 43/45								1	2			1	4	1,7
Drag. 45 (/Lud. R5b)			5			57		41	20	1		26	150	64,9
Chenet 328-330						2					48	1	51	22,1
Chenet 330											11		11	4,8
TOTAL	0	0	6	0	0	62	0	45	30	1	59	28	231	100,0
%MNI	0,0	0,0	2,6	0,0	0,0	26,8	0,0	19,5	13,0	0,4	25,5	12,1	100,0	

Table 14: The represented mortarium types and their fabrics, based on MNI.

The Drag. 45 was produced in Central- and East-Gaulish kilns and distributed from the last quarter of the 2nd century onwards (Webster 1996, 56). In contrast to most of the other vessel types the Rheinzabern potteries were not the main suppliers of this type - they only account for 20 MNI or 13.3% of the Drag. 45 individuals (Plate LXXXII: 61-71) -, but instead mainly the Argonne (38.0%) (Plate LXXVIII: 3-15; LXXIX; LXXX: 29-35), and also the Trier workshops (27.3%) took the lead here (Plate LXXX: 36-42; LXXXI; LXXXII: 56-59) (Table 14). The mortaria display a large variety in rim diameter, with the Lezoux vessels between 176 and 300 mm (for the latter: see Plate LXXVIII, 21), the Argonne mortaria between 162 and 304 mm, the Trier individuals between 180 and 320 mm and the Rheinzabern vessels between 186 and 296 mm (Fig. 18). The small mortaria are particularly well-present in the Argonne assemblage; both Argonne and especially Trier supplied large mortaria. The Oudenburg assemblage includes the evolutions from the more 'realistic' lion head spouts from the Argonne and (early?) Rheinzabern workshops (see e.g. Plate LXXVIII: 14 and Plate LXXXII: 67) to the more stylised examples from the Argonne (see e.g. Plate LXXVIII: 5; Plate LXXIX: 18), and the typical, widely distributed, bat-faced spouts from Trier which can be assigned to the mid-3rd century (Bird 1993, 8) (Plate LXXX: 38, 42; Plate LXXXI: 46).



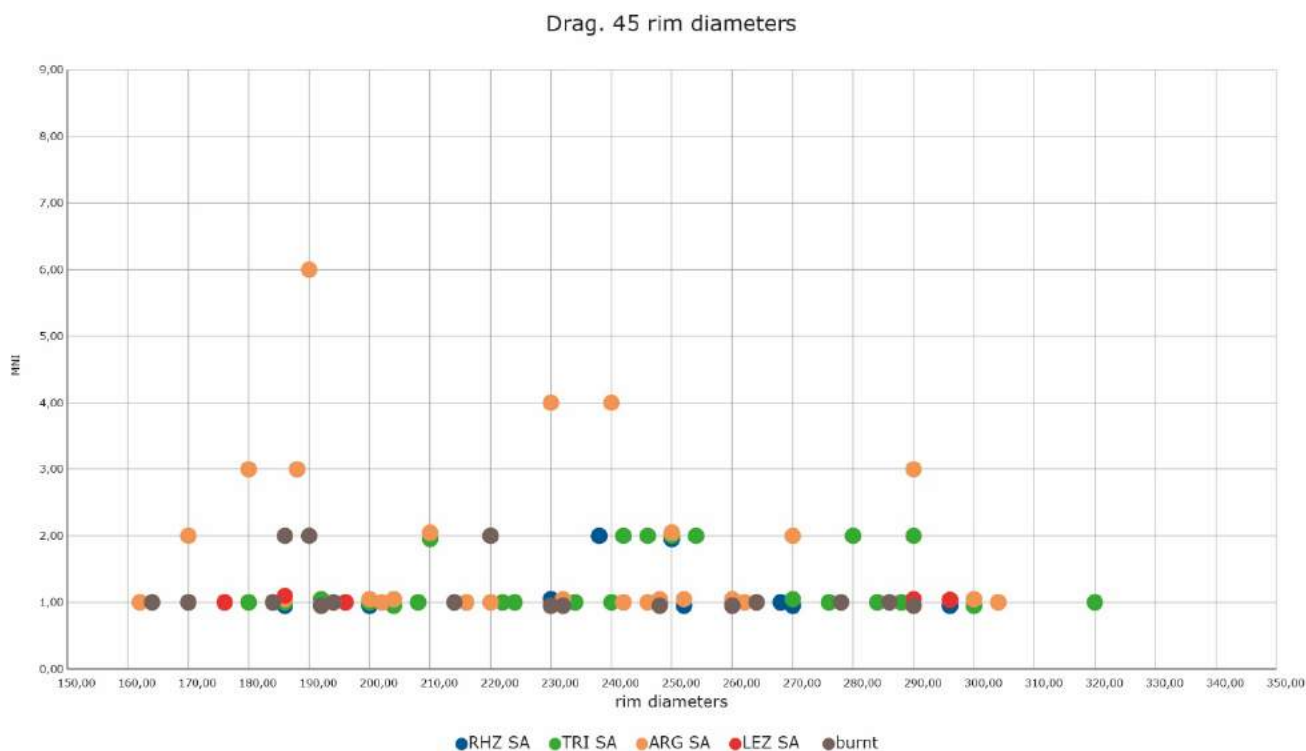


Fig 18: The rim diameters of the Drag. 45 mortaria. Comparison between the different fabrics.

The type Drag. 43 with its deep flange which is often decorated with elaborate barbotine motifs, a typical feature for the 3rd century (Bird 1993, 6), has a less significant presence in the assemblage with only 6.5% of the mortaria MNI (15 MNI) (Table 14; Plate LXXXV). Of both types the Drag. 45's clearly occupy a very prominent position in a 10 to 1 ratio. It is not particular that the Drag. 43 was less common at the Oudenburg fort than the Drag. 45; this has also been noticed by Bird (1993, 6) for British sites. The Drag. 43 was mainly supplied by Rheinzabern (8 MNI) and less by Trier and Argonne, the latter both in equal quantities (three MNI). Only one Drag. 43 MNI was made at Lezoux.

The mortarium spectrum is complemented with the late Roman mortarium type generally known as Chenet 328-330 and accounting for 26.8% of the total mortaria MNI (62 MNI)<sup>36</sup>. The late Roman mortaria at the Oudenburg fort are nearly entirely supplied by the North-Gaulish potters (minimum 59 out of 62 individuals or 95.2%) (Plate LXXXIII: 77-88; Plate LXXXIV: 89-101). Four individuals can be identified as Les Rues-des-Vignes productions (fabric DTS.BE-RDV (see before) of which one is illustrated: Plate LXXXIII, 80); the other products were probably all supplied by potters from the Boulonnais region (see before). Only two late Roman Argonne mortaria were counted, both of type Chenet 328-330 (one illustrated: Plate LXXXIV, 102).

In general, the North-Gaulish derived samian group presents itself typologically in a very limited range of forms. The mortarium is its most frequent form at Oudenburg. Only one example displays a more or less realistically shaped lion spout (Plate LXXXIII: 77), perhaps a late 3rd-century fragment? In most cases, the figurative shape of the lion head spout of the North-Gaulish mortaria is stylised (Plate LXXXIII: 81, 86, 87; Plate LXXXIV: 90), in many cases into nothing more than a hole surrounded by small circles probably referring to the lion's mane hair (Plate LXXXIII: 88; Plate LXXXIV: 92, 95, 96). Based on this assumed inspiration by (and imitation of?) the lion head spout, these fragments were catalogued as type Chenet 330. Based on the number of preserved spouts, at least eleven individuals Chenet 330 were counted. The 51 other individuals can only be generally

<sup>36</sup> The type Chenet 328 is characterised by a plain vertical rim; the Chenet 329 by a simple pouring hole pierced through the vertical rim which sometimes bears a simple decoration. It is however only the Chenet 330 which has a pouring hole developed into an applique, mostly a lion's head. Since most often only rim fragments without the hole and/or applique are found, one cannot determine the exact type.

identified as Chenet 328-330<sup>37</sup>. The sizes of the Chenet 328-330/330 mortaria show a wide variety, with rim diameters ranging between 144 and 260 mm.

### 6.3. Cups

The cup spectrum is dominated by the Drag. 33 cup representing 66 individuals or 63.5% of the total cups MNI (Table 15; Plate LXXXVI: 3-24; Plate LXXXVII). Of the other types only the Drag. 40 (13 MNI or 12.5%) (Plate LXXXVIII: 66-70) and the Drag. 35 (7 MNI or 6.7%) (Plate LXXXVIII: 55-59) are of significance, with Trier as leading supplier for the Drag. 35 and both Trier and Rheinzabern for the Drag. 40 cup. The study of a large stock group of Central-Gaulish samian found at Nantes which was destroyed in a fire before being distributed, demonstrates that by the middle of the 3rd century Drag. 33 and Drag. 40 cups were still very popular (Delage *et al.* 2011).

CUP TYPES IN MNI	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL	%MNI
Ve B1	1												1	1,0
Drag. 27			2					1	1				4	3,8
Drag. 33		1	21	1		4		13	12	3		11	66	63,5
Drag. 35	1		2					3	1				7	6,7
Drag. 40			1			2		5	4			1	13	12,5
Drag. 46			1									2	3	2,9
O&P Pl. LV: 13 (Drag. 46 variant)			1	1									2	1,9
Massenfund 19 / O&P Pl. LV: 24 / NB 8b (Drag. 46 variant)								4					4	3,8
Lud. Bd / Oc									1				1	1,0
Lud. Bf / Bb								1					1	1,0
Massenfund 8a									1				1	1,0
Chenet 319						1							1	1,0
TOTAL	2	1	28	2	0	7	0	27	20	3	0	14	104	100,0
%MNI	1,9	1,0	26,9	1,9	0,0	6,7	0,0	26,0	19,2	2,9	0,0	13,5	100	

Table 15: The represented cup types and their fabrics, based on MNI.

When considering the total cup assemblage, a different view emerges in comparison to other forms (Fig. 19). In general, the Lezoux and the Trier potteries play the most important role as supplier of cups, in equal quantities with respectively 28 and 27 MNI (26.9% and 26.0% of the cups MNI). The Rheinzabern workshops 'only' count for 19.2% and the Argonne potteries appear to be of less importance for the cup supply with 6.7%. When considering the types per fabric, Lezoux stands out as supplier of the Drag. 33 cup, with 31.8% of the MNI of this type, while Trier and Rheinzabern only count for respectively 19.7% and 18.2%. The definable rim diameters of the Argonne Drag. 33 cups range from 90 to 130 mm, of the Lezoux cups from 90 to 140 mm; the Trier Drag. 33 cups are within a range of 82 to 165 mm, the Rheinzabern ones a range of 88 to 136 mm. The presence of more robust profiles, straight rather than slightly concave walls, the larger sizes (in height) and the absence of stamps in the Trier and Rheinzabern spectrum are indicative for the 3rd century (Bird 1993, 8) (Plate LXXXVII: 30, 31, 38-41, 44, 45).

Drag. 33 distribution in MNI (n: 66)



Fig 19: General distribution of Drag. 33 cups according to fabric, based on MNI.

Other cup types are only present in minor quantities (Table 15). The 1st-century cup Ve B1 in La Graufesenque ware is clearly a residual find (not illustrated). This might also be the case for the four Drag. 27 cup fragments, two in a Lezoux fabric (one illustrated: Plate LXXXVI: 1), one from

<sup>37</sup> The Chenet 330 mortaria are illustrated amongst the Chenet 328-330 mortaria, in accordance to their rim diameter, in order to obtain a clear overview of the variety in sizes.



Trier (2) and one from Rheinzabern (not illustrated), since this form went out of production c. AD 150-160 (Webster 1996, 38). Only one Lezoux cup (Plate LXXXVIII: 60) and two burnt individuals can be assigned to the type Drag. 46. However, a variant of the Drag. 46 type (O&P Pl. LV: 13) can be added, one from Lezoux (not illustrated) and one in an undefined Central-Gaulish fabric (Plate LXXXVIII: 61). Worth emphasising is the presence of four individuals of the 3rd-century Drag. 46 variant type known as Massenfund 19 / NB 8b / O&P Pl. LV, 24 (Plate LXXXVIII: 62-65). All four were made at the Trier potteries. One Rheinzabern cup shows the profile of the Massenfund type 8a of which no Ludowici equivalent is known (Plate LXXXVIII: 71). Two fragments, one belonging to the Rheinzabern ware and one from Trier, can only be generally attributed to types from the Ludowici repertoire, respectively Lud. Bd / Oc and Lud. Bf / Bb.

Only one late Roman cup type could be distinguished, a Chenet 319 in Argonne ware (not illustrated).

#### 6.4. Collared bowls

The collared bowls account for only 3.7% of the total samian assemblage or 43 MNI (Table 12; Plate LXXXIX-XC). The mid-Roman types dominate; they represent 32 or 35 MNI (with the undetermined ones from Trier and Rheinzabern and one burnt example included). With 54.5% of the total MNI or 68.6% of the MNI within the mid-Roman collared bowl group, the Drag. 38 bowl is the most popular type (24 MNI) (Table 16).

COLLARED BOWL TYPES IN MNI	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL	%MNI
Curle 11		1				2							1	2,3
Curle 21			1			2							3	6,8
Drag. 38			3	1		5		3	4	1		7	24	54,5
Drag. 44								1	1				2	4,5
Massenfund 15												1	1	2,3
Carm 5										1			1	2,3
Chenet 324g						1							1	2,3
Trier I, 8b / Chenet 325												1	1	2,3
Chenet 326											4		4	9,1
Brulet 424						1							1	2,3
Mareuil 326						1							1	2,3
Alzei 5						1							1	2,3
collared bowl undet.								1	1			1	3	6,8
TOTAL	0	1	4	1	0	11	0	5	6	1	5	10	44	100,0
%MNI	0,0	2,3	9,1	2,3	0,0	25,0	0,0	11,4	13,6	2,3	11,4	22,7	100	

COLLARED BOWL TYPES IN MNI (mid-Roman)	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL	%MNI
Curle 11		1											1	2,9
Curle 21						2							2	5,7
Drag. 38			3	1		5		3	4	1	2	7	26	74,3
Drag. 44								1	1				2	5,7
Massenfund 15												1	1	2,9
Carm 5											1		1	2,9
collared bowl undet.								1	1				2	5,7
TOTAL	0,0	1,0	3,0	1,0	0,0	7,0	0,0	4,0	5,0	1,0	3,0	8,0	35	100,0
%MNI	0,0	2,9	8,6	2,9	0,0	20,0	0,0	11,4	14,3	2,9	8,6	22,9	94,3	

Table 16: The represented collared bowl types and their fabrics, based on MNI. The table below only considers the mid-Roman types.

This type was supplied by the Argonne (5 MNI), Rheinzabern (4 MNI), Trier (3 MNI) and Lezoux (at least 3 MNI) workshops (Plate LXXXIX: 3-14). The North-Gaulish 'Drag. 38' individuals, accounting for four MNI, should possibly be added to these productions. Though representing exactly the same form, they are designated as 'Chenet 326'. As they clearly already occur at fort level 4 (with at least two individuals covering four fragments), they most likely represent a mid-Roman vessel, indicated by its mid-Roman form (Plate LXXXIX: 15-16).

With seven burnt individuals, the numbers of the different fabrics are too small to make further conclusions on the supply of this collared bowl type. The shapes of the preserved profiles are very indicative though. They show a large variety in vessel size and collar shape; both rounded and hooked collars were fashionable. The Central-Gaulish individuals (Plate LXXXIX: 3-4) and the bowl from the Argonne (5) represent the typical 2nd-century form, large in size and with a rounded flange. Typologically, the shallower Drag. 38 bowl with square flange seems to be indicative for later, 3rd-century productions (Huld-Zetsche 1971, type 15; Bird 1993, 10). This type is clearly

represented in the East-Gaulish productions at the Oudenburg site (Plate LXXXIX: 7 (Argonne), 9 (Trier), 10 (Rheinzabern)), with one burnt example (13) and with one North-Gaulish product (16).

Drag. 38 flanged bowls are common in find contexts of the late 2nd century and first half of the 3rd century but become rare in the second half of the 3rd century. According to Kortüm, production in Rheinzabern must have come to a halt by the middle of that century (Kortüm 1994, 251). However, the Trier Massenfund group (Huld-Zetsche 1971, 34, type 15) and the Louis-Lintz-Strasse-complex (dated AD 259 or 260–75) (Loeschcke 1923, taf 11, 10) suggest that this form was still produced in Trier throughout the third quarter of the 3rd century.

The other identified collared bowl types are of very little significance. The Curle 11 bowl from Les Martres-de-Veyre is a residual, dug-up piece found in the construction pit of the large water-basin dated to the 4th century (not illustrated). The Curle 21 type is represented by three individuals, the Drag. 44 type by two individuals. Two of the Curle 21's were supplied by the Argonne potteries (Plate LXXIX: 1-2), one by Lezoux (not illustrated); the Drag. 44's are from Trier and Rheinzabern (not illustrated). The 3rd-century Massenfund 15 type is represented by only one MNI, representing two burnt pieces, a rim and a base fragment. A wall fragment with transition to the collar and displaying the mid-Roman North-Gaulish DTS.HE-NE fabric can be recognised as a Carm 5 (not illustrated). This piece can possibly be dated to the end of the 2nd to 3rd century (Brulet 2010e, 269).

Related to the collared bowls are the East-Gaulish deep bowls with barbotine freeze, represented in the assemblage of the south-west corner site with at least four individuals. These bowls, known as Lud. SM and Massenfund 11 or 12, are typical 3rd-century finds (Bird 1993, 6; Huld-Zetsche 1971). One Rheinzabern individual can be specified as Lud. SMa (Plate XC: 1), another as SMC (Plate XC: 2). One Trier and another Rheinzabern bowl can only be generally ascribed to respectively the Massenfund 11-12 type and the Lud. SM type (not illustrated).

Five collared bowls can be undoubtedly identified as late Roman, four of them supplied by the Argonne; one burnt individual possibly originated from Trier. The latter would hence represent the only product in the samian assemblage that can be attributed to the late Roman Trier production. The late Roman collared bowls show a variety of types but each is scarcely represented: Chenet 324g with nicely profiled vertical rim (1 MNI, Argonne) (Plate XC: 3), Trier I, 8b / Chenet 325 (1 MNI, burnt but based on the type a Trier product) (Plate XC: 4), Chenet 326 (4 MNI, NOG SA), Brulet 424 (1 MNI, Argonne), Mareuil 326 (1 MNI, Argonne) and Alzey 5 (1 MNI, Argonne).

### 6.5. Beakers, vases and related forms

Although 267 beaker fragments were recovered, only a minimum of 27 individuals can be counted, pointing to a high degree of fragmentation of these commonly thin-walled vessel forms. Twenty-five individuals can be attributed to mid-Roman beaker types (Table 17).

BEAKER TYPES IN MNI (mid-Roman)	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL	%MNI
Déch. 64R						1							1	4,0
Déch. 72			1			4		1					6	24,0
Lud. Vd,e,f,g (Drag. 54)								1		1			2	8,0
Lud. Vd									2				2	8,0
Lud. Ve									3				3	12,0
Lud. Vf									1				1	4,0
Lud. VMg									1				1	4,0
Lud. VSb									3				3	12,0
Lud. VSd								1					1	4,0
Lud. KMa / VMc (large beaker or jug)									1				1	4,0
beaker large volume								2	2				4	16,0
TOTAL	0	0	1	0	0	5	0	5	13	1	0	0	25	100,0
%MNI	0,0	0,0	4,0	0,0	0,0	20,0	0,0	20,0	52,0	4,0	0,0	0,0	100	

Table 17: The represented mid-Roman beaker types and their fabrics, based on MNI.

Except for one Déch. 72 beaker from Lezoux, all beakers were supplied by East-Gaulish workshops with Rheinzabern as most important origin (13 MNI or 52.0% of the mid-Roman beaker group MNI), followed by Argonne and Trier, both responsible for 5 MNI. The Argonne beakers can be assigned to the types Déch. 64R (1 MNI) (only body fragments) and Déch. 72 (4 MNI) (Plate XCI:

1-7). The latter type represents at least three beakers with so-called cut-glass decoration (Plate XCI: 3 to 6<sup>38</sup>) and one with barbotine decoration depicting ivy leaves (only small body fragments preserved). The Trier beaker group, consisting of very fragmentary material, represents at least one Déch. 72 with barbotine decoration with floral motifs (only body fragments) and one plain globular beaker of the Lud. V series (Plate XCI: 9). Although the body is not preserved, a rim fragment can be identified as originating from a large beaker Lud. VSd, a type characterised by cut-glass decoration (Plate XCI: 8). The Rheinzabern assemblage (Plate XCI: 10-25) contains at least five plain, globular beakers representing the types Lud. Vd (at least three) and Lud. Ve (at least two) (Plate XCI: 10-17). Three beakers can be recognised as type Lud. VSb with characteristic cut-glass decoration (Plate XCI: 19-21). At least one beaker, almost completely preserved, represents the type Lud. VMg with barbotine decoration (Plate XCI: 18). The large Rheinzabern made foot may have belonged to a vase Lud. VWa, VWb, VSa, VMc, VMd or kantharos Thomas 5 (Plate XCII: 29). Also the heavy foot in Rheinzabern fabric (Plate XCII: 30) was part of a large beaker or kantharos. The indications for kantharoi are scarce, but their presence is certainly attested. A body fragment with the start of a handle and a wall sherd from a kantharos or flagon are worth mentioning for the Rheinzabern assemblage. A kantharos from Trier is proven by the barbotine-decorated small handle of a Thomas 6 (Plate XCII: 28). In the Trier fabric, the lower body part with broken off high pedestal and another body fragment may also have belonged to a kantharos.

Several fragments – which can be reduced to a minimum of four MNI – draw attention because they are relatively thick-walled and point to vessels of large dimensions. These large closed forms are not so much beakers, but are rather better referred to as jars. One burnt Rheinzabern wall sherd shows a floral barbotine decoration (Plate XCII: 26). A large form from Rheinzabern is composed by joining, mostly burnt, fragments which were scattered over the Roman level (horizontally and vertically). The extensive barbotine decoration shows a hunting or procession scene and was possibly part of a jug Lud. KMa or a very large beaker (Plate XCII: 27). Apart from a rim fragment with large diameter, the Trier assemblage also yielded a fragment showing modelled decoration (only the edge preserved). One may wonder whether these large vessels played a role in the cult practices of the military community.

Only two late Roman beaker types can be recognised, namely a Chenet 333 and a Chenet 335 (not illustrated), both supplied by the Argonne potteries.

#### *6.6. Rare forms in the samian assemblage*

The samian assemblage, which can be described as fairly homogeneous in forms and types, is completed with a few rare forms. Only two bottles can be counted. A bottle from Trier shows the Massenfund 17b type which can be dated around the middle of the 3rd century (Huld-Zetsche 1971; Bird 1993, 11; Bird in Dickinson 1993, 160) (Plate XCII: 31). A second bottle rim, with start of a handle, is burnt and cannot be further specified typologically (Plate XCII: 32). Body fragments from a flagon with barbotine decoration in Rheinzabern fabric are the only evidence for flagons in this samian assemblage. Flavons (like the NB 27) are essentially mid-3rd century and later products (Reuter 2005, 225).

## 7. The stamps

Within the totality of the 4841 samian sherds from the Roman level, 128 stamps were counted. Of this assemblage, 98 stamps are recorded in the catalogue; the remaining twenty stamps are not preserved enough to allow for an identification (completely abraded, only very partly or not preserved die). Another 31 stamps were retrieved from the post-Roman level, but since it is uncertain which occupation they represent and since neither their exact origin is known, they were

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<sup>38</sup> It cannot be excluded that nos. 5 and 6 belong to the individuals 3 or 4.

not studied in detail<sup>39</sup>. The stamp numbers (SS) refer to the catalogue (Section 13 of this Appendix) and are linked to the Plates (XCIII-C).

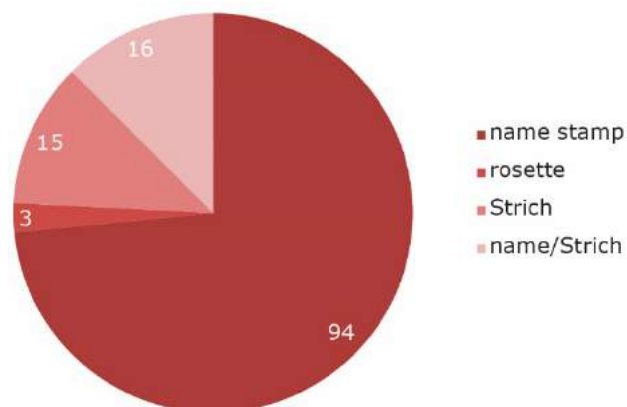


Fig 20: The different samian stamp types represented at the south-west corner site. Proportional distribution of the in total 128 stamps.

The frequency of the stamps on the plain wares varies according to the forms, the workshops and through time (Tables 18-19; Fig. 21-22). Particularly the Rheinzabern potters seem to have stamped their vessels frequently. The stamps mainly occur on dishes/shallow bowls, accounting for 113 items.

	LEZ SA	CG SA	MAD SA	ARG SA	TRI SA	RHZ SA	EG SA	burnt	TOTAL
cup	3			1	1	1			6
decorated bowl					1	5			6
dish	7	1	1	6	30	52	1	15	113
undet.				1	1			1	3
<b>TOTAL</b>	<b>10</b>	<b>1</b>	<b>1</b>	<b>8</b>	<b>33</b>	<b>58</b>	<b>1</b>	<b>16</b>	<b>128</b>

Table 18: Number of stamps on cups, decorated bowls and dishes according to fabric, based on MNI.

<sup>39</sup> The intermediate numbers not listed in the catalogue (S046, S049>052, S054>065, S067, S107, S129, S148, S150>153, S162) are the numbers of the stamps found in the post-Roman levels.

function	type	LEZ SA	CG SA	MAD SA	ARG SA	TRI SA	RHZ SA	EG SA	burnt	TOTAL
cup	Drag. 33	3			1	1				5
cup	Drag. 33 or 40						1			1
decorated bowl	Drag. 37					1	5			6
dish	Curle 23	1								1
dish	Drag. 18/31	4	1	1	4	2	2		3	17
dish	Drag. 18/31 or 31	1			1	1	6		2	11
dish	Drag. 31 / Lud. Sb				1	8	10		2	21
dish	Drag. 32 / Lud. Ta					1	2		1	4
dish	Drag. 32/36					2	5		3	10
dish	Drag. 36					3	6			9
dish	Lud. Tb						1			1
dish	Lud. Tg						1			1
dish	Lud. Th					1				1
dish	dish undet.	1				12	19	1	4	37
form undet.	undet.				1	1			1	3
<b>TOTAL</b>		<b>10</b>	<b>1</b>	<b>1</b>	<b>8</b>	<b>33</b>	<b>58</b>	<b>1</b>	<b>16</b>	<b>128</b>

Table 19: Number of stamps according to type of vessel and fabric, based on MNI.

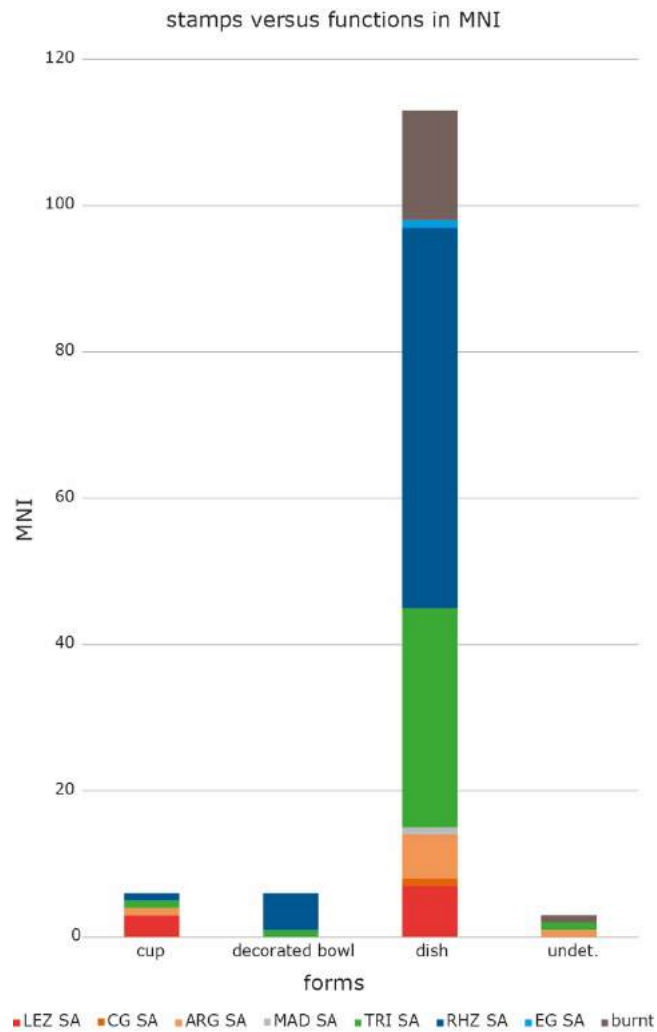


Fig 21: Distribution of stamps on cups, decorated bowls and dishes according to fabric, based on MNI.

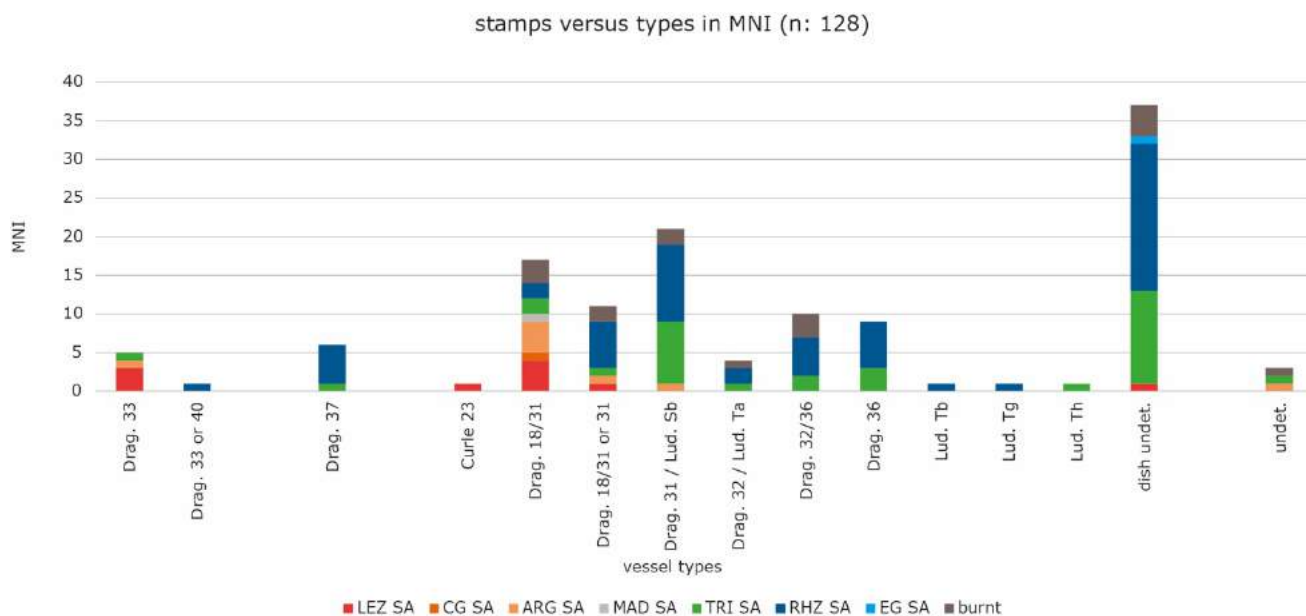


Fig 22: Distribution of stamps according to type of vessel and according to fabric, based on MNI.

The identified potters demonstrate that the stamped dishes are mainly dated to the later 2nd and first half of the 3rd century. Stamps on Drag. 18/31 and 31 dishes are well-represented but it is the Drag. 31 dish that keeps on being stamped during the first half of the 3rd century. In the 3rd century only East-Gaulish stamped dishes Drag. 18/31 and 31 occur in the assemblage, mainly produced at Rheinzabern, but also at Trier (Fig. 21; Fig. 23-24). Although the Drag. 36 dish is the dominant dish type in the Oudenburg assemblage, only nine stamps could be attributed to this type with certainty. Except for the unknown Apolo/Apolus of Trier (SS13) (consequently not date range can be given), they are all stamped by Rheinzabern potters (Fig. 24). However, with a total of 37 stamps which cannot be assigned to a specific dish type, this conclusion is evidently not absolute for the whole assemblage. Only six stamped cup bases were counted. The presence of many more Drag. 33 bases without stamp indicate that these cups were more often not named, a phenomenon already observed by Bird at British sites (Bird 1993, 3).

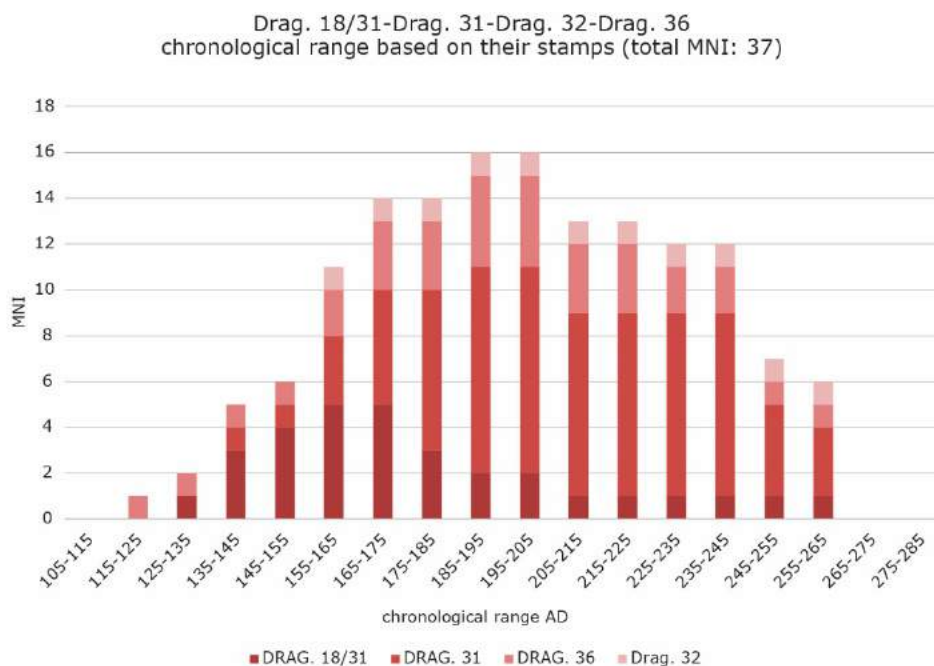


Fig 23: Chronological range of Drag. 18/31, Drag. 31, Drag. 32 and Drag. 36 dishes based on the presence of stamps. Based on MNI.



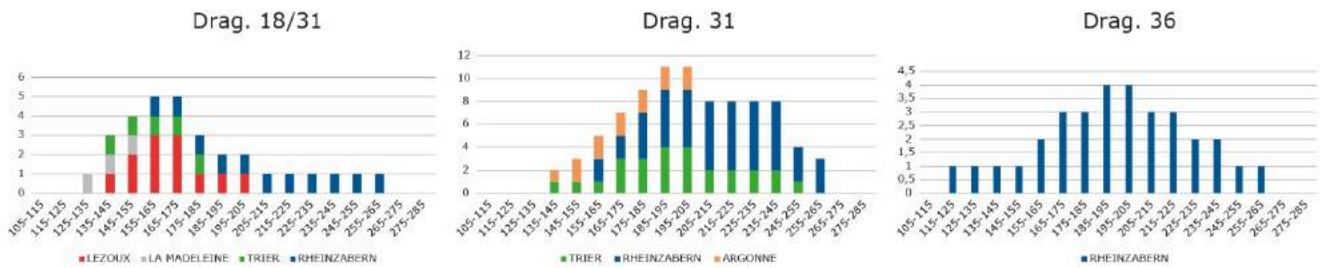


Fig 24: Chronological range of Drag. 18/31 versus Drag. 31 versus Drag. 36 dishes based on the presence of stamps. Based on MNI.

In total 94 name stamps were counted, including six intra-decorative stamps recorded on Drag. 37 bowls, one from Trier and five from Rheinzabern. Fifty-seven of the name stamps could identify the potter, resulting in 51 unique stamps (Table 20). Four of the plain ware name stamps are illiterate. The collection contains three rosette stamps, two on Lezoux vessels (one Drag. 33 cup (SS82) and one Curle 23 dish (SS81)) and one on a Rheinzabern dish (SS83). Characteristic for the 3rd century is the presence of so-called *Strich* stamps or line-stamps which only exist of an empty frame (Bird 1993, 3). The vessels stamped with these *Strichs* were supplied by Trier (seven items: SS 84-90) and Rheinzabern (four items: SS91-94); another four items were found on burnt fragments (SS95-98). The *Strich* stamps occurred from fort level 3 onwards (three items) and are well-present in fort level 4 with eight items. It is worth emphasising the presence of a Rheinzabern dish wearing a graffito by a potter, incised *ante-cocturam*, instead of a stamp (SS75). At Rheinzabern there were only a few potters who signed their products in this manner, namely Attianus and Belatullus (Schücker *et al.* 2011, 338-348). The fragmentation of the Oudenburg example however makes the reading and a more precise identification impossible: it is not clear whether it concerns an indication of a name or a number.

Six Lezoux potters can be identified: Albusius ii (SS1), ?Carant-Don- (SS2), Cintusmus i (SS3), Magio i (SS4), Pugnus ii (SS5) and Sabinus viii (SS6). They cover a production period between AD 135 and 200 but mainly refer to the 2nd half of the 2nd century. To their stamps, two rosette stamps can be added. Only one stamp can be attributed to the La Madeleine production (SS9); Amabilis ii was working between AD 125 and 155 and its vessel should therefore be considered as a residual item.

For the Argonne only eight stamped plain ware vessels were recorded, mostly dishes, with one exception of a cup Drag. 33 stamped by Tullus (SS12). Three Argonne potters are recognised : Giamillus iii from Lavoye (SS10), Libonus from Lavoye (SS11) and Tullus from Le Pont-des-Rèmes (SS12). They were mainly active during the period AD 150-200. Giamillus iii and Libonus both worked until the start of the 3rd century.

Apart from one Drag. 37 bowl marked by Comitalis (SS16), all Trier name stamps were found on dishes. The Trier potters cover a period from AD 160 to 260. Only the production period of Cerialis vii (SS15) already started in the Antonine period (probably AD 140-180). The youngest dates are provided by Dessius (SS17) and Patruinus ii (SS24), both working at Trier in the period AD 200-260. Also the stamp of Urbanus (AD 190-240) (SS25) is most probably to be dated in the early 3rd century.

The majority of the potters were working at Rheinzabern; of 37 stamps the potter can be identified. Apart from Martinus v who stamped a cup (SS54) and apart from Comitalis (SS36), Iulianus iii (two times : SS48 and SS49), Iulius viii (SS50) and Respectinus ii (SS61) who put their names on their Drag. 37 bowls, they all supplied dishes. Most of these Rheinzabern potters were active within the period AD 160-250. Only Giamillus v (SS47) and Cintugnatus (SS35) knew a production period starting earlier in the Antonine period. Very significant for the chronology of the Oudenburg fort are the potters which were attested more than once: Magio ii (two times: SS52 and SS53), active in the period AD 160-260; Crassiacus (two times: SS38 and SS39), active AD 180-220; Euritus (three times: SS42, 43 and 44), producing during the period AD 180-240 ; Severianus iii (two

times: SS63 and SS64), active in the period AD 190-240. The most recent of potters is Respectinus ii (SS61) who produced his Drag. 37 bowl in the period AD 220-260.



<i>potter</i>	<i>origin</i>	<i>start date</i>	<i>end date</i>	<i>vessel type</i>
ALBVCIVS ii	Lezoux	145	175	Drag. 18/31
CARANT- DON-	Lezoux	160	200	Drag. 18/31 or 31
CINTVSMVS i	Lezoux	140	180	Drag. 18/31
MAGIO i	Lezoux	160	200	Drag. 18/31
PVGNVS ii	Lezoux	135	165	Drag. 33
SABINVS viii	Lezoux	160	200	Drag. 33
AMABILIS ii	La Madeleine	125	155	Drag. 18/31
GIAMMILLVS iii	Argonne (Lavoye)	140	200	Drag. 31
LIBONVS	Argonne (Lavoye)	150	200	Drag. 18/31 or 31
TVLLVS	Argonne (Le Pont-des-Rémes)	150	180	Drag. 33
APOLO/APOLVS	Trier	?	?	Drag. 32 or 36
ATILIDO	Trier	175	250	Dish
CERIALIS vii	Trier	140	180	Drag. 18/31
COMITIALIS	Trier	170	240	Drag. 37
DESSIVS	Trier	200	260	DishR
DRVCAVRVS	Trier	160	260	Dish?
ELENIVS i	Trier	170	200	Drag. 31
IVCVNDVS v	Trier	160	260	Drag. 32
MERCVSSA	Trier	?	?	Lud. Th
MINVTVS	Trier	170	250	Drag. 31
PARENTINVS	Trier	180	260	Dish
PATRVINVS ii	Trier	200	260	Dish
VRBANVS	Trier	190	240	Drag. 31
XIATIVAV	Trier	?	?	Dish
ATTA	Rheinzabern	170	220	Drag. 36
ATTIANVS iv	Rheinzabern	160	260	Dish
CAPITOLINVS	Rheinzabern	170	260	Dish
CINTVGNATVS ii	Rheinzabern	140	180	Drag. 18/31 or 31
COMITIALIS	Rheinzabern	170	240	Drag. 37
CRACO ii	Rheinzabern	160	260	Drag. 36
CRASSIACVS (x2)	Rheinzabern	180	220	Dish; Drag. 18/31R or 31R
DATIVS	Rheinzabern	160	240	Drag. 18/31 or 31
DRVCAURVS	Rheinzabern	160	260	Drag. 32 or 36
EVREDITVS (x3)	Rheinzabern	180	240	Lud. SbR; Drag. 31R; Dish
FIRMINVS ii	Rheinzabern	160	220	Dish
FLAVIANVS ii	Rheinzabern	160	260	Dish
GIAMMILLVS v	Rheinzabern	120	200	Drag. 36
IVLIANVS iii (x2)	Rheinzabern	220	255	Drag. 37 (2x)
IVLIVS viii	Rheinzabern	220	255	Drag. 37
LATINIANVS	Rheinzabern	160	260	Drag. 18/31 or 31
MAGIO ii (x2)	Rheinzabern	160	260	Drag. 31; Dish
MARTINVS v	Rheinzabern	170	250	Drag. 33 or 40
MATERNINVS iii	Rheinzabern	160	260	Dish
NVNDINVS ii	Rheinzabern	160	260	Drag. 31R
ONERATVS	Rheinzabern	160	260	Drag. 32 or 36
ONNIOR	Rheinzabern	160	260	Drag. 18/31 or 31
PATRVINVS i	Rheinzabern	160	260	Drag. 18/31
PEPPO	Rheinzabern	160	260	Dish
RESPECTINVS ii	Rheinzabern	220	260	Drag. 37
SATINVS	Rheinzabern	160	260	Drag. 32 or 36
SEVERIANVS ii (x2)	Rheinzabern	190	240	Drag. 31; Drag. 36R
TARENTINVS	Rheinzabern	175	250	Dish
VERVS vi	Rheinzabern	210	260	Drag. 31R/Lud.SbR
VICTOR v or VICTORINVS ii	Rheinzabern	210	260	Dish
VICTORINVS ii	Rheinzabern	210	255	Dish

Table 20: List of potters by stamp at the south-west corner site.

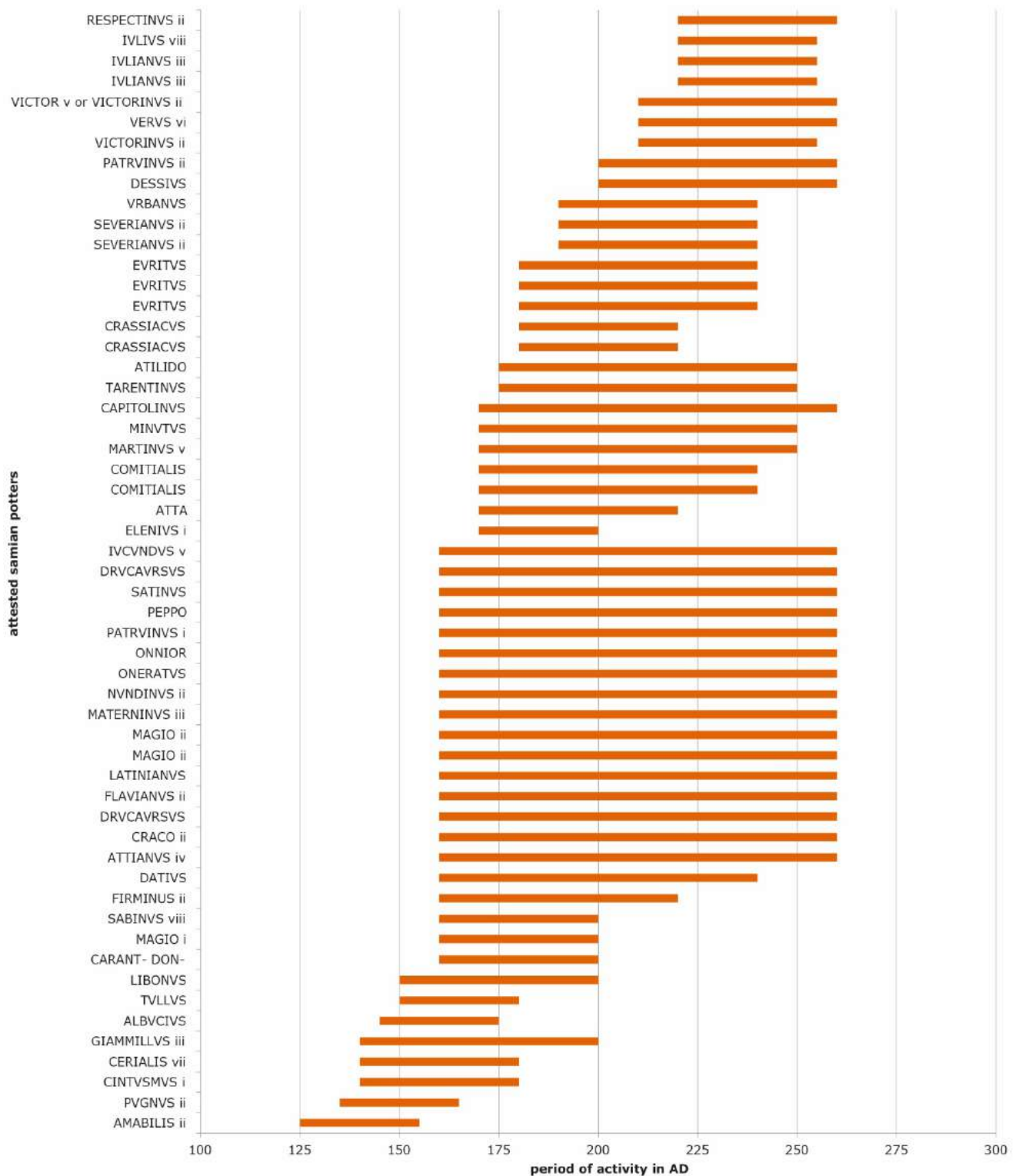


Fig 25: Chronological range of the potters represented by stamps at the south-west corner site.

When the date ranges offered by the unique stamps are considered, the overall chronological range is situated mainly between AD 155 and 265 with a strong presence from AD 175 onwards (Table 20; Fig. 25-27). When each chronological segment is considered as 'present one time' (which is in fact an over-representation), the graphic shows a small dip around AD 205-215 (Fig. 26). This result is checked with a graph with each chronological segment calculated as an equal part of '1' (with the sum of the segments being '1'), from which it is clear that the same overall picture emerges (Fig. 27).

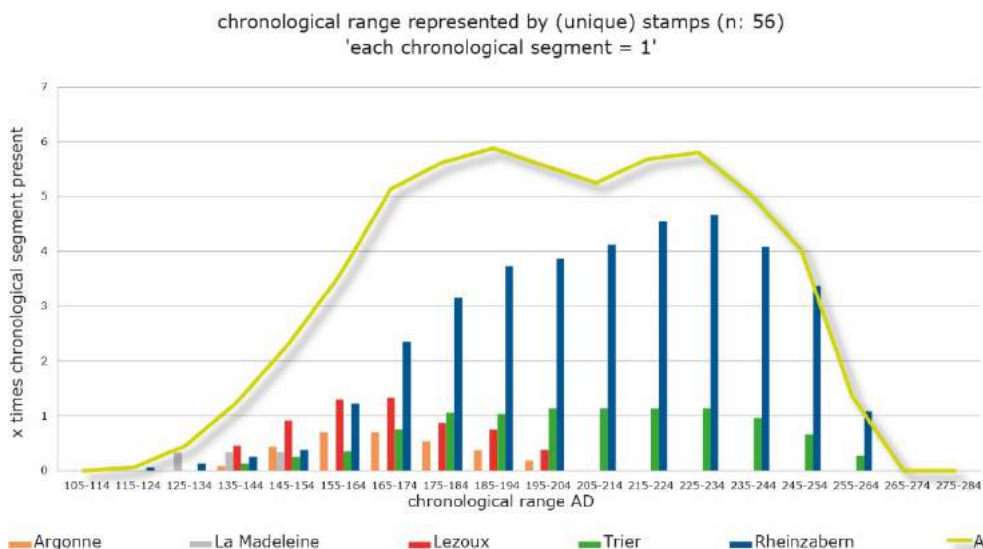


Fig 26: Chronological range represented by the potter stamps at the south-west corner site, based on unique stamps (a stamp found more than once is included as only one stamp). In this graph each chronological segment (10 years) is counted as 1. With thanks to T. Clerbaut.

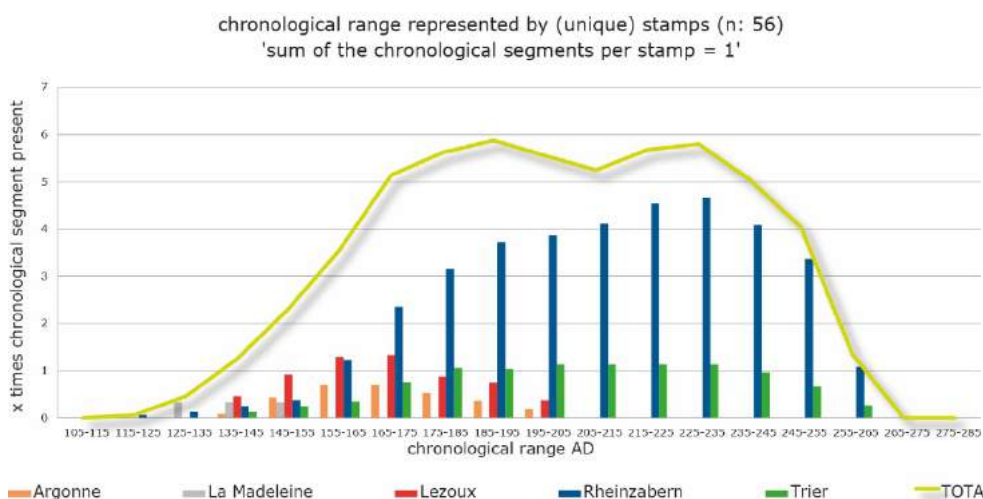


Fig 27: Chronological range represented by the potter stamps at the south-west corner site, based on unique stamps (a stamp found more than once is included as only one stamp). In this graph the sum of all chronological segments (each 10 years) is 1. With thanks to T. Clerbaut.

## 8. The decorated wares

### 8.1. The mid-Roman decorated bowls

The basis for the analysis of the decorations, included in the following analysis, is formed by the catalogue of the decorated samian (Section 14 of this Appendix). All bibliographical references for the dating of the potters and workshops can be found there. The decoration numbers (DS) refer to the catalogue and are linked to the Plates (CV-CX).

A wall fragment and part of a footring, both in La Graufesenque fabric, are the only fragments of the type Drag. 29 (one MNI) discovered at the site (not illustrated). The wall fragment was found in a layer of fort level 4; the footring was recovered from the construction pit of the large water-basin of fort level 5. Both are clearly residual, dug-up finds from earlier civilian activity at this location. Also the presence of the Drag. 30 type is negligible; this form is only represented by three MNI with one Argonne Drag. 30 (Plate CI: 2), one Argonne Drag. 30R (Plate CI: 1) and one Trier Drag. 30 (not ill.). The Drag. 30R type mainly occurred in the 2nd century, whereas the decorated Drag. 30 was made throughout the exporting period, even still by the East-Gaulish potters into the

3rd century, mainly from Rheinzabern, although in small numbers (Webster 1996, 43; Bird 1993, 3). The absence of *in situ* Drag. 29 bowls and the low numbers of Drag. 30(R) (see Table 21) emphasise that the fort occupation represented by the mid-Roman samian assemblage is situated largely in the 3rd century.

DECORATED BOWL TYPES IN MNI	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL	%MNI
Drag. 29	1												1	0,4
Drag. 30 / 30R						2		1					3	1,1
Drag. 37	7	1	14		2	25	1	53	89	2		9	203	75,5
Drag. 37R						1			2				3	1,1
imitation Drag. 37R											3		3	1,1
Chenet 317?						1							1	0,4
Chenet 318?						1							1	
Chenet 320						49					4	1	54	20,1
TOTAL	8	1	14	0	2	79	1	54	91	2	7	10	269	99,6
%MNI	3,0	0,4	5,2	0,0	0,7	29,4	0,4	20,1	33,8	0,7	2,6	3,7	100,0	

DECORATED BOWL TYPES IN MNI (mid-Roman)	LG SA	LMV SA	LEZ SA	CG SA	MAD SA	ARG SA	BLW SA	TRI SA	RHZ SA	EG SA	NOG SA	BURNT	TOTAL
Drag. 37	7	1	14		2	25	1	53	89	2		9	203
Drag. 37R						1			2				3
imitation Drag. 37R											3		3
TOTAL	7	1	14	0	2	26	1	53	91	2	3	9	209
%MNI	3,3	0,5	6,7	0,0	1,0	12,4	0,5	25,4	43,5	1,0	1,4	4,3	100,0

Table 21: Represented decorated bowl types versus fabric, based on MNI.

The main decorated bowl type encountered at the south-west corner site is the Drag. 37 with 75.5% of the decorated bowl MNI (203 of 269 MNI) (Table 21). Only three Drag. 37R bowl individuals were counted, one from Argonne (not ill.) and two from Rheinzabern (Plate CIV: 41 and 42). Three MNI Drag. 37R imitations in North-Gaulish technique, with one complete profile, also belong to the mid-Roman repertoire (Plate CIV: 44-45).

Within the totality of 209 Drag. 37 bowls (203 MNI Drag. 37, 3 MNI Drag. 37R, 3 MNI Drag. 37R imitation) (Table 21), the Rheinzabern potteries take an impressive lead with 91 MNI or 43.5%. The supply of the Trier workshops was also important, with 53 MNI or 25.4%. The Argonne represents a moderate quantity with 26 MNI or 12.4%. The decorated products from Lezoux only count for 6.7% of the Drag. 37 MNI (14 MNI), again indicating that the main fort activities are to be situated in the 3rd century. Other production centres only supplied in minor quantities.

The Drag. 37/37R bowl profiles show a large variety in rim diameter and body profile (Plates CI: 3-11; CII-CIV). Both the Trier and Rheinzabern products comprise smaller and compact examples as well as large vessels with a high, often flaring, rim. The latter is a 3rd-century evolution (cf. Bird 1993, 4). Trier examples are Plate CII, 17 and 19; examples of Rheinzabern vessels with such high rim are Plate CIII, 32 and Plate CIV, 33 and 36.

The decorated bowls are represented by 214 freeze fragments (with or without rim preserved) with 61 of them being too small or too abraded to consider further (ovolo too little preserved or hardly any freeze motif distinguishable). The remaining 153 fragments are listed in the catalogue of the decorated samian<sup>40</sup> (Section 14 of this Appendix), and yield in total 76 unique potter, potter group or style identifications (Tables 22-23).

<sup>40</sup> The applied date ranges are the maximal dates as encountered in recent literature.

potter	origin	start date	end date
Arvernicus-Lutaevus (2x)	Rheinzabern	160	190
Attilus	Rheinzabern	180	250
Atto or Reginus II	Rheinzabern	160	235
Atto, Marcellus II, Primitivus I or IV, or Ware mit Zierglied O382/383	Rheinzabern	160	260
B.F. Attoni	Rheinzabern	170	220
Belsus II, Attilus or Ware mit Eierstab E25/E26	Rheinzabern	170	250
Cerialis group	Rheinzabern	160	230
Cerialis I or V	Rheinzabern	160	230
Cerialis I, IV, V, Comitalis I or Arvernicus-Lutaevus (2x)	Rheinzabern	160	240
Cerialis III	Rheinzabern	160	230
Cerialis VI, Primitivus I or III	Rheinzabern	160	260
Comitalis group of Rheinzabern (2x)	Rheinzabern	170	240
Comitalis I, Iulius II-Iulianus I, Ware anschliessend an Iulius II-Iulianus I or Victorinus II	Rheinzabern	170	260
Comitalis IV (or related potter) (3x)	Rheinzabern	170	240
Comitalis V (or related potter) (7x)	Rheinzabern	170	240
Comitalis V, Iulius II-Iulianus I or related potter (3x)	Rheinzabern	170	260
Firmus II	Rheinzabern	165	220
Helenius	Rheinzabern	180	200
Iulius I	Rheinzabern	220	255
Iulius I, Lupus or Perpetuus	Rheinzabern	190	275
Iulius II-Iulianus I (9x)	Rheinzabern	220	255
Iulius II-Iulianus I or Respectinus I	Rheinzabern	220	260
Iulius II-Iulianus I, Respectinus I or Victorinus II	Rheinzabern	210	260
Lucanus II	Rheinzabern	160	200
ovolo Ri-Fi E23 (2x)	Rheinzabern	170	260
ovolo Ri-Fi E25	Rheinzabern	170	260
ovolo Ri-Fi E26 (2x)	Rheinzabern	170	260
Perpetuus	Rheinzabern	230	275
Primitivus I or III	Rheinzabern	220	260
Primitivus IV	Rheinzabern	220	260
Reginus I, Cobnertus or Ianu I	Rheinzabern	150	200
Respectinus II	Rheinzabern	220	260
Statutus II	Rheinzabern	230	260
Verecundus II	Rheinzabern	160	220
Victor II or Ianuco	Rheinzabern	220	270
Victorinus II	Rheinzabern	210	250
Ware B mit Zierglied O382/383	Rheinzabern	200	275

Table 22: Potters and potter groups (classified by decoration, per workshop) attested at the south-west corner site (part 1).



potter	origin	start date	end date
Censor/Censorinus, M. Crestio, Crucuro II or Mercator	La Graufesenque	70	120
L. Cosius	La Graufesenque	100	130
M. Crestio, Memor or Mercator	La Graufesenque	70	110
Mercator, Germanus or related potter	La Graufesenque	70	110
Momo	La Graufesenque	60	90
Cettus/Satus	Les Martres-de-Veyre	130	160
Censorinus II	Lezoux	160	190
Cinnamus II (2x)	Lezoux	135	180
Iullinus, Advocisus, Carantinus, Paternus or Cinnamus	Lezoux	130	200
Iustus II	Lezoux	160	200
Mercator II	Lezoux	160	200
Servus II	Lezoux	160	200
Sacer	La Madeleine	125	155
Virtus/Virtuus	La Madeleine	120	130
Ware mit Eierstab C	La Madeleine	120	190
Africanus or Germanus	Argonne	160	200
Eburus of Lavoye (2x)	Argonne	150	200
Gesatus of Lavoye	Argonne	150	200
Tocca group	Argonne	130	170
Tribunus ii of Lavoye (5x)	Argonne	150	200
Ware mit Eierstab G (2x)	Argonne	120	220
Ware mit Eierstab G / Tribunus	Argonne	150	200
unknown potter	Blickweiler	105	160
Afer (3x)	Trier	190	240
Afer Marinus group	Trier	190	240
Afer, Dubitatus-Dubitus or Paternianus	Trier	190	260
Afer-Marinus, Dubitatus-Dubitus or related potter	Trier	190	260
Atillus-Pussosus	Trier	220	260
Atillus-Pussosus, Amator or related potter	Trier	200	260
Censor, Maiiaaus or Art der Ware mit Eierstab Fölzer 941	Trier	165	240
Censor-Dexter (group) (6x)	Trier	180	240
Comitalis of Trier (4x)	Trier	170	240
Dubitatus-Dubitus	Trier	200	260
Maiiaaus or related potter (4x)	Trier	170	240
Maiiaaus, Comitalis or related potter	Trier	165	240
Primanus	Trier	230	275
Werkstatt I	Trier	130	150
Werkstatt II (2x)	Trier	145	165
Werkstatt II 'spätere Ausformung' or Maiiaaus group	Trier	145	210
Werkstatt II 'spätere aufsformung' (4x)	Trier	170	210

Table 23: Potters and potter groups (classified by decoration, per workshop) attested at the south-west corner site (part 2).

### 8.1.1. La Graufesenque (DS1-6)

Some Drag. 37 fragments come from the South of Gaul. They were all supplied by the La Graufesenque workshops and the identified styles can be attached to the late 1st and early 2nd century AD. Five potter groups are recognised: Momo (DS1), Censor/Censorinus-M. Crestio-Crucuro II-Mercator (DS4), M. Crestio-Memor-Mercator (DS2), Mercator-Germanus-related potter (DS3), and L. Cosius (Virilis) (DS5). They cover a date range from AD 60 to 130. The Momo sherd has been reworked as a counter (DS1). These La Graufesenque pieces have to be considered as residual finds from an early occupation at Oudenburg prior to the fort. In addition to their considerable fragmentation, they were found in association with later samian sherds. This was also the case for a wall fragment and part of a footing in La Graufesenque fabric which can be attributed to the Drag. 29 type. From the earliest sector of the civil settlement, found underneath the late

Roman graveyard A, two Drag. 29 bowls could be attributed to the South of Gaul (Creus 1975, 18, 17: Afb. 7, 32-33).

### 8.1.2. Central Gaul (DS7-17)

Only one decorated Drag. 37 wall sherd can be assigned to the productions at Les Martres-de-Veyre (DS7). The identified potter is Cettus or Satus, also known as the Small S-potter; he was active in the period AD 130-160.

The rest of the Drag. 37 bowls were supplied by the Lezoux potteries; they count for fourteen MNI. Apart from only two substantial rim fragments (Plate CI: 3-4) and one complete base (PLATE XLIV: 5), the Lezoux assemblage consists merely of loose wall sherds. Six potters or styles were recognised: Cinnamus II (two times: DS8 and DS9), Iullinus-Advocisus-Carantinus-Paternus-Cinnamus (DS10), Censorinus II (DS 11), Iustus II (DS13), Mercator II (DS14) and Servus II (DS12). The period of production of these potters covers a date range from AD 130 to 200 with an emphasis on the period AD 160-200. Delage (2003, 186-188) has however demonstrated that their production period and definitely the period of distribution of their vessels may have continued much longer. For Cinnamus he suggests a continuation until AD 220; the decorated vessels of Iullinus and Paternus may even be dated until AD 240 while the end date for Mercator II is pushed forward until AD 250 (Delage 2003, 187: Fig. 2). While their original date range seems to indicate that these sherds, recovered from features belonging to fort level 2 and later, are residual, dug-up items, these proposed new date ranges imply that this is not necessarily the case.

### 8.1.3. North-East Gaul

The La Madeleine production is only recognised by three decorated Drag. 37 wall sherds (DS18-20). The identified potters, Sacer and Virtus/Virtuus, and the style group Ware mit Eierstab C cover a date range from AD 120 to 190. The early period represented by Virtus/Virtuus (AD 120-130) might indicate that this is a residual sherd from the civil settlement. This fragment was found as a dug-up item in the construction pit of the large water-basin of fort level 5. The sherd of the Sacer bowl was recovered from the earliest earthen rampart level. In accordance to the date range of the accompanying Lezoux products, it seems most probable that also this fragment, dated to AD 125-155, is a residual piece.

The decorated Drag. 37 bowls from Argonne are represented in moderate quantities in the Oudenburg assemblage with 26 MNI or 12.4% of the total Drag. 37 MNI (Plate CI: 6-11). Two fragments can be attributed to the Drag. 30 type: one rim Drag. 30R most likely datable to the 2nd century and one Drag. 30 base not further identifiable. The sixteen Drag. 37 rim sherds show a variety of rim diameters ranging from c. 188 to 270 mm. Based on the identifiable freeze fragments, six potters or styles have been distinguished: Africanus-Germanus (DS31), Eburus of Lavoye (DS29 and DS30), Gesatus of Lavoye (DS28), Tocca group (DS21), Tribunus ii of Lavoye (DS22,23,24,25,26) and Ware mit Eierstab G (DS32 and possibly DS33). Tribunus ii of Lavoye is represented with certainty no less than five times. With a date range between AD 150 and 200 this is a very significant element for the fort occupation chronology. The Argonne potters cover a very wide date range from AD 120 to 275, though most of them were working in the period AD 150-200.

### 8.1.4. East-Gaul

Although the potter could not be identified, one Drag. 37 wall sherd is to be attributed to the Blickweiler production based on its fabric and decoration (DS42). The fragment can only be generally dated according to the production period of these workshops to the period AD 105-160 (Vilvorder in Brulet *et al.* (réd.) 2010, 173) and is most likely a residual piece from the pre-fort settlement.

With 53 MNI, merely defined by the different freeze fragments and in relation to distinguishable fabrics, a lot of Trier potteries supplied their Drag. 37 bowls to the Oudenburg fort. Only one Drag.



30 rim sherd can be attributed to the Trier workshops. The thirteen Drag. 37 rim profiles of which the rim diameter could be defined, reveal small and larger bowls with rim diameters ranging from 168 to 288 mm (Plate CII). The largest vessels show very high rim parts, a typical late phenomenon (see before).

Only 39 Trier finds yield a 'readable' decoration and are recorded in the catalogue (DS43-82). The Trier products cover the whole exporting period of the Trier workshops. One wall sherd can be attributed to the Antonine Werkstatt I, dated AD 130-150, and can be considered as a residual find (DS43). The later Werkstatt II, in its initial phase dated to AD 145-165, is represented by at least two individuals (DS44 and 45). At least four bowls can be identified as so-called 'spätere Ausformungen' (DS44, 46, 47, 48). Another individual may also have been from the Maiiaaus group (DS50). The distinctive late fabric of these products indicates that they were produced in reused or old moulds by potters working in the period AD 170-210. Five groups of potters cover a production period from the later 2nd century to AD 240: Censor-Maiiaaus-Art der Ware mit Eierstab Fölzer 941 (DS61), Maiiaaus-Comitalis-related potter (DS66), Comitalis of Trier (DS62-65), Maiiaaus or related potter (DS51-54) and the Censor-Dexter group (DS55-60). Very significant for the Oudenburg chronology is the multiple presence of three potters: Comitalis of Trier (four times, once confirmed by intradecorative stamp (DS64)), Maiiaaus or related potter (at least four times) and the Censor-Dexter group with no less than six individuals. Ten Drag. 37 bowls were made by potters or groups (mainly) working in the 3rd century: Afer (DS67-69), Afer Marinus group (DS70), Afer-Dubitatus-Dubitus or Paternianus (DS75), Afer-Marinus-Dubitatus-Dubitus or related potter (DS74), Atillus-Pussosus-Amator or related potter (DS71), Dubitatus-Dubitus (DS73), Atillus-Pussosus (DS72) and Primanus (DS76). Important to emphasise is the presence of at least three Afer Drag. 37 bowls, dated to AD 190-240.

With 89 MNI of Drag. 37 bowls and two MNI Drag. 37R, Rheinzabern plays a dominant role in the supply of decorated bowls to the Oudenburg fort. In the catalogue 65 freeze fragments are recorded of which 59 can be attributed to a potter, group or style. The diameters of 27 rims could be defined ranging from 155 to 260 mm. According to the Ludowici typology these small to large bowls can be identified as types Lud. BSa, BSc and Bse (Plate CIII ; Plate CIV: 33-40).

Only four Rheinzabern bowls were made by potters or groups solely working in the 2nd half of the 2nd century, namely Reginus I/Cobnertus/Ianu I (DS88), Arvernicus-Lutaevus (attested twice : DS89 and DS90) and Lucanus II (DS91). Many of the attested potters or potter groups started their productions around AD 160 or 170, but were active until well into the first half of the 3rd century or until the middle of the 3rd century : Verecundus II (DS95), the Cerialis group (attested three times (DS92-94), possibly four when including DS97), Atto or Reginus II (DS96), the Comitalis group (represented twelve (DS101-112), but possibly fifteen times ; once confirmed by intradecorative stamp (DS103)), Firmus II (DS99) and B.F. Attoni (DS100). In addition to these potters who can be identified with certainty, also Marcellus II (DS136) and Belsus II (DS113) are possible candidates for the attribution of certain bowls. Helenius (DS114) and Attilus (DS115) started their production only c. AD 180. While Helenius offers a narrow date range until AD 200, Attilus produced until the middle of the 3rd century. At least nineteen bowls can only be dated to the 3rd century. Their makers are identified as: Victorinus II (DS116), Iulius I (once, possibly twice : DS117 and DS141), Iulius II-Iulianus I (attested nine times : DS118-126), Iulius II-Iulianus I-Respectinus I(-Victorinus II) (attested twice: DS127 and DS128), Primitivus I or III (DS130), Primitivus IV (DS131), Respectinus II (confirmed by intradecorative stamp DS129), Victor II or Ianuco (DS132), Statutus II (DS133) and Perpetuus (DS134). The latter two potters started their production not earlier than AD 230.

Very significant for the Oudenburg chronology is the multiple presence of bowls decorated by Comitalis of Rheinzabern and by Iulius II-Iulianus I. Twelve Comitalis bowls were recognised; another three vessels may also belong to this group. Styles I, IV as well as V seem to be represented. Unfortunately the Comitalis group covers a very wide date range of AD 170-240. Iulius II-Iulianus I are the makers of at least nine bowls; four more may also have been decorated by them. The close date range of this potter group, AD 220-255, is a very important chronological element for the Oudenburg fort occupation dating range (see further). The production by this

workshop is generally dated in the second quarter of the 3rd century. Simon (1968, 22) and Bernhard (1981, Abb. 3) date this group after AD 233 and their products are well-represented in contexts of the second quarter of the 3rd century (c. AD 233 – 260/270) such as the London New Fresh Warf assemblage, dated by Bird between AD 235 and 245 (Bird 1986, 143; cf. also Bird 2002, 34-35 and Scholz 2006, 36 with reference to other authors who date this group between AD 210/230 and 260/270).

#### *8.1.5. The mid-Roman decorations and their chronological implications*

When decorations are considered in their totality, most of them fall within the date range AD 160-260 (Fig. 28). The decoration dates are presented in two graphs (Fig. 29-30). Fig. 29 shows the date ranges per fabric with each chronological segment represented as 'one time present', while Fig. 30 displays the same date ranges per fabric with each chronological segment calculated as an equal part of '1' (with the sum of the segments being '1')<sup>41</sup>. They represent a similar overall picture, but Fig. 30 shows some important nuances. While Fig. 29 marks a clear supply from AD 165 onwards, Fig. 30 seems to shift this date rather to AD 175. Both graphs present a dip around the period AD 205-215 which is a similar outcome as with the date ranges shown by the stamps where it was less marked though.

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<sup>41</sup> The La Graufesenque date range can be attributed to an earlier occupation prior to the fort.

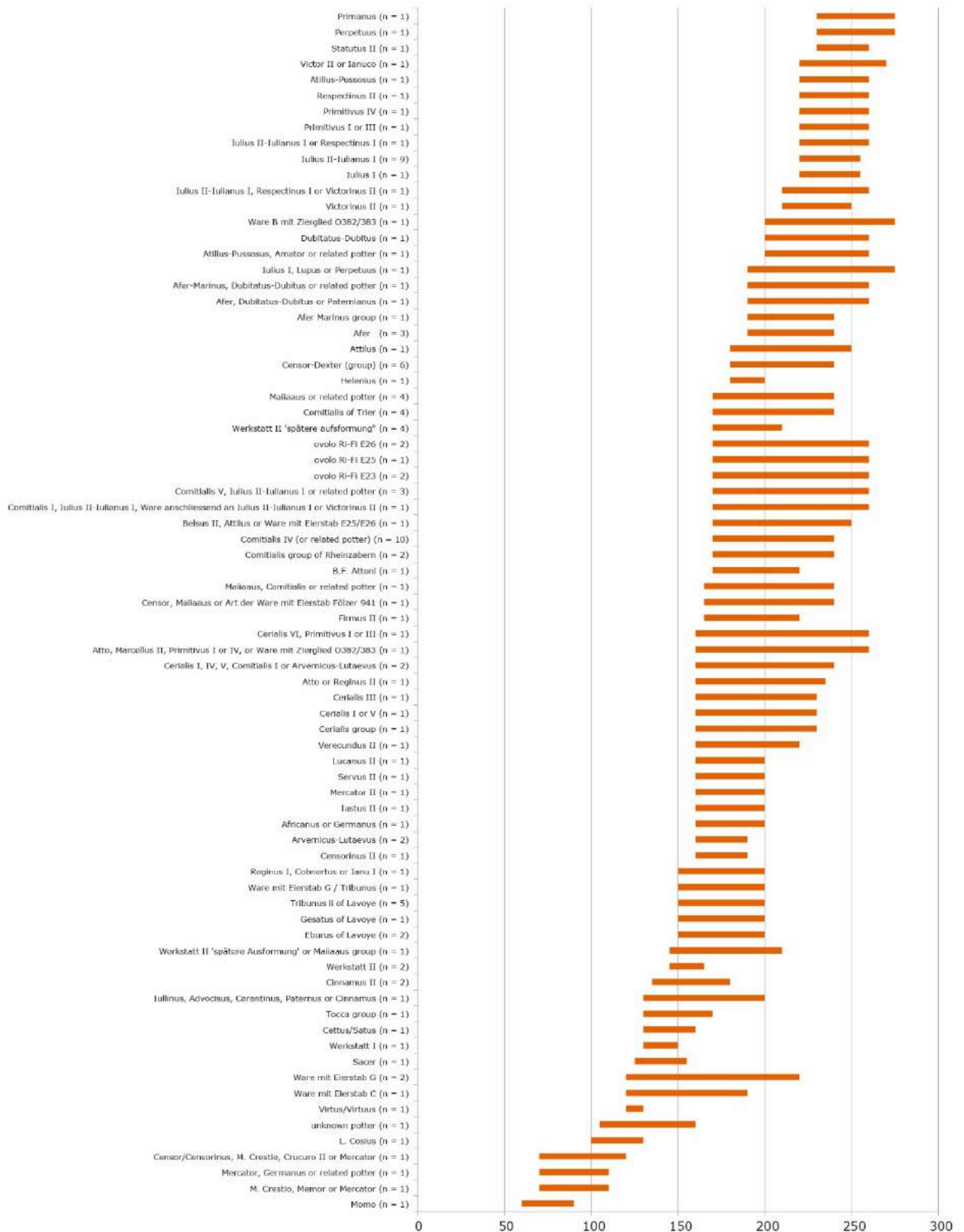


Fig 28: Chronological range of the potters represented by decoration at the south-west corner site, with indication of their frequency.

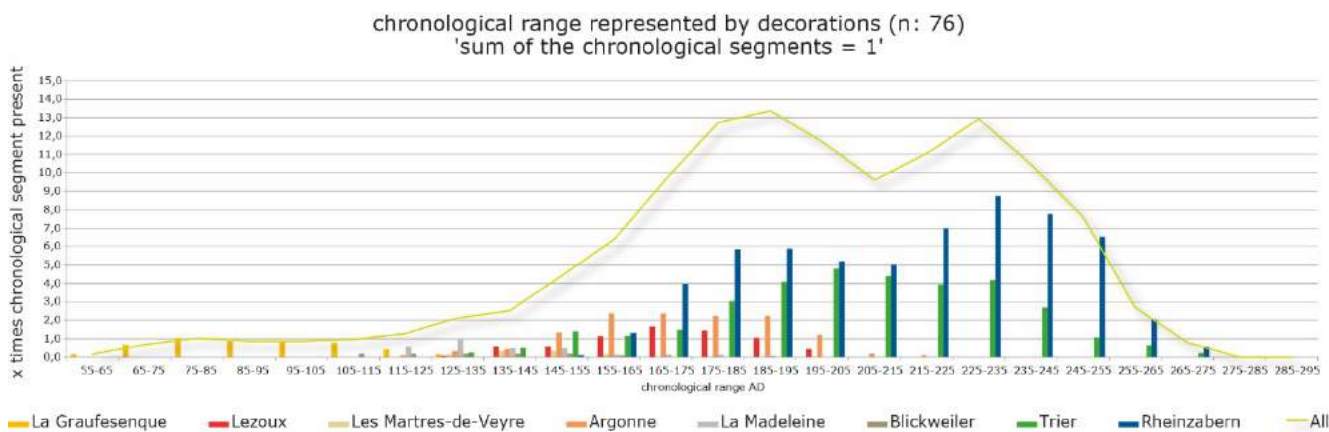


Fig 29: Chronological range represented by the samian decorations at the south-west corner site, based on unique potters (a potter found more than once is included as only one style). In this graph each chronological segment (10 years) is counted as 1. With thanks to T. Clerbaut.

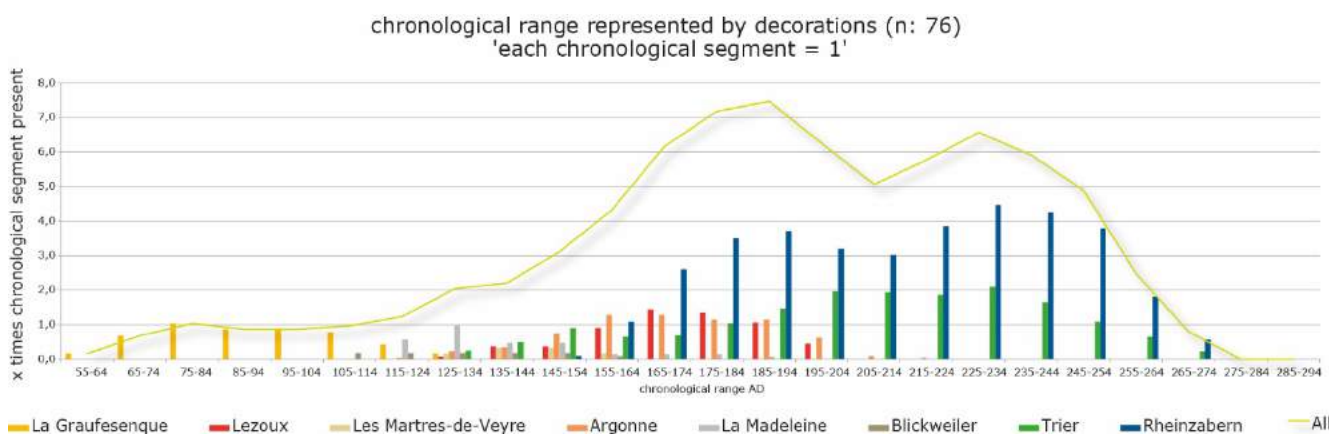


Fig 30: Chronological range represented by the samian decorations at the south-west corner site, based on unique potters (a potter found more than once is included as only one decoration). In this graph the sum of all chronological segments (each 10 years) is 1. With thanks to T. Clerbaut.

## 8.2. Late Roman decorated bowls with roller-stamped decoration from the Argonne region and the North of Gaul

The late Roman decorated bowl repertoire in the Roman level of the south-west corner site is completely taken up by the Chenet 320 type (54 MNI), except for one possible Chenet 317 wall sherd<sup>42</sup> (with decoration preserved) and one rim of a small Chenet 318? bowl (no decoration preserved) (Plate CX: 1), both in Argonne fabric. The MNI quantification of this group is based on the different roller stamps, as their number exceeds the number of Chenet 320 rims (23 unique rim fragments).

Most of the Chenet 320 bowls from the Roman level, and also from the later levels, originate from the Argonne; for the Roman level 49 MNI were counted. Both very good (hard fabric, good quality coating, clear stamp) as bad quality (bad quality coating, soft fabric and/or bad quality stamp) products are represented in the assemblage. The fourteen Argonne rims with definable rim diameter fall within a range from 140 to 252 mm, thus including a variety of smaller and larger vessels (Plate CX: 2-14). Slightly concave profiles as well as more flaring, conical shapes occur. Only four

<sup>42</sup> This small fragment was recovered from a fort level 4 layer (and counted as such) but should be considered as an intrusive find from fort level 5.

decorated bowl MNI from the Roman level can be attributed to the late Roman North-Gaulish potteries<sup>43</sup>. All four represent rim fragments without decoration preserved.

Most of the Chenet 320 fragments bear roller stamps<sup>44</sup> (Plate CXII-CXIX). These roller-stamped sigillata form the guide fossils for the late Roman period at Oudenburg. While the general study of the samian wares only comprised the sherds found within the Roman level itself, all roller-stamped sigillata items recovered from the site were included in a specific detailed analysis for the chronological information they can provide. Since the civil occupation around the fort apparently no longer existed after the late 3rd century AD and roller-stamped sigillata only appeared from c. AD 310/320 onwards (cf. Hussong and Cüppers 1972; Brulet 2010d, 226), all cases found regardless of context including the ones from the post-Roman and mixed levels (as residual finds), reflect the military occupation at Oudenburg.

The south-west corner site yielded in total 307 roller-stamped individuals, representing 491 fragments (Table 24). They were studied by W. Dijkman; a recent revision following new developments in the study of roller stamps was performed by L. Bakker. All identifications, dating proposals and places of origin were provided by Dijkman, Bakker and Van Ossel<sup>45</sup>.

The post-Roman level completes the late Roman decorated type spectrum with only a few other types (Plate CXI). While the Roman level only yielded one decorated, possible Chenet 317 wall sherd (with roller stamp UC 24) and one Chenet 318 (broken off above decoration) in the decorated assemblage dominated by the type Chenet 320, two Chenet 313 dishes, both from the Argonne, can be added to the late spectrum: one complete profile with roller stamp NS 3232 (Plate CXI: 1) and one rim fragment with roller stamp UC 56 (Plate CXI: 2). In addition, another 250 MNI of Chenet 320 bowls can be added to the 49 MNI from the Roman level.

The North-Gaulish decorated bowls remain a minority in the post-Roman level. Only another fourteen roller-stamped fragments in North-Gaulish fabric, belonging to nine MNI, were recovered. All North-Gaulish decorated vessels from the Oudenburg site appear to originate from the Boulonnais region. Three different roller stamps were preserved: one UC 123 var., one NS 2057 and two NS 2050. The two latter roller stamps are only known from the Oudenburg fort and appear to be characteristic for the North-Gaulish production (Delbey *forthcoming*). In the North-Gaulish fabric an undefined collared bowl (rim not preserved) (Plate CXI: 3) can be added, bearing the roller stamp NS 2057.

Forty-nine of the total number of 307 roller stamps belong to the Roman level<sup>46</sup>. Based on the stratified evidence, the roller-stamped vessels appear from fort level 5 onwards<sup>47</sup>. Of these 49 roller stamps, 24 were recovered from the 'double' well OS 2562 (see Vanhoutte *et al.* 2009b, 82-88); seven stamps were retrieved from the large water-basin OS 4923. They will be discussed further within their respective context assemblages.

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<sup>43</sup> Three other decorated bowl MNI in North-Gaulish fabric represent a type imitating the Drag. 37R, and are clearly belonging to the mid-Roman samian repertoire (Plate CIV: 44-46). They were recovered from levels assigned to fort level 3 and 4.

<sup>44</sup> The UC coding system of the roller stamps refers to the publications of Unverzagt (1919) and Chenet (1941). Since 1995, L. Bakker (Augsburg), W. Dijkman (Maastricht) and P. Van Ossel (Paris) are preparing a Corpus of roller stamped sigillata. For the roller stamps which were not identified by Unverzagt and Chenet, a new coding has been created by them, with a NS-number (=Nouvelle Série). All roller stamps found at Oudenburg are included in the Corpus that Bakker, Dijkman and Van Ossel are preparing (Bakker *et al. forthcoming*).

<sup>45</sup> The given dates are the present proposals by L. Bakker, W. Dijkman and P. Van Ossel. Slight changes may occur in the future as their general study of roller stamps proceeds. They will not alter the general image presented here though (pers. comm. by Van Ossel).

<sup>46</sup> This number of 49 roller stamps can also be considered as the MNI of the Argonne Chenet 320 bowls at fort level 5, since in total only 28 unique rim fragments were counted.

<sup>47</sup> Eight small sherds were found in earlier levels (no closed contexts), but must be regarded as intrusive finds.

roller stamp type	n	known origin	dating proposals
UC 1	1		320-360
UC 2	1		IV b-c
UC 4	1		IV b-c
UC 6	3		IV b-c
UC 10	1		IV b-c
UC 20	1		360-390/400
UC 24	1		410-450
UC 25	2	Vauquois-Les Allieux	410-450
UC 26	1		410-450
UC 29	3		410-450
UC 32	1		IV A
UC 33	2		370 - 420/30
UC 38	1		370 - 410
UC 40	4	Vauquois-Les Allieux	390-430
UC 45	9		390-430
UC 50	1		IV d - V a
UC 55=236	4	Vauquois-Les Allieux	IV b-d
UC 56	1	Avocourt	IV d
UC 60	1		IV B
UC 62=285	2	Vauquois-Les Allieux	IV d - V a (?)
UC 64	10		IV d - V a (?)
UC 66	1	Vauquois-Les Allieux	IV d - V a
UC 86	4	Aubréville	IV d - V a
UC 88	1		V A
UC 93	1	Lavoie / Vauquois-Les Allieux	IV d - V a
UC 94	3	Vauquois-Les Allieux	IV d - V a
UC 95	5	Vauquois-Les Allieux	IV d - V a
UC 96	3	Lavoie	IV d - V a
UC 107	2	Vauquois-Les Allieux	IV d - V a
UC 108	1		IV B
UC 110	2	Avocourt	IV B
UC 111=333	4		IV d - V a
UC 112=341	1	Vauquois-Les Allieux	IV d - V a
UC 113	10		IV B - V a
UC 114=340	3	Avocourt	390/400-420/430
UC 117	12	Lavoie / Vauquois-Les Allieux	340-380/390
UC 118	1	Lavoie / Vauquois-Les Allieux	IV d
UC 121	2	Vauquois-Les Allieux	IV d - V a
UC 123 var.	1		[IVd-Va]
UC 127	1	Vauquois-Les Allieux	360 - 380/390
UC 129=325	3	Avocourt	350-400/410
UC 132=264	2	Vauquois-Les Allieux	IV b-c
UC 135	2	Vauquois-Les Allieux	390-430
UC 148	1	Vauquois-Les Allieux	IV d - V a
UC 158	6		IV b - IV d
UC 159	1		IV b - IV d
UC 164	2	Vauquois-Les Allieux	IV d - V a
UC 165	6	Vauquois-Les Allieux	IV d - V a
UC 172	2	Vauquois-Les Allieux	360 - 390/400
UC 177	3	Vauquois-Les Allieux	IV d - V a
UC 188	1		IV b-c
UC 196	2		IV b-c
UC 199	1		390 - 425
UC 200	2		IV b-c
UC 207	1		IV b-c
UC 255	1		IV B (?)
UC 270	1		IV b-c

roller stamp type	n	known origin	dating proposals
UC 286=327	2		IV b-c
UC 288	1		IV b-c
UC 299	7	Vauquois-Les Allieux	IV b - IV c
UC 301	1	Vauquois-Les Allieux	IV d - V a
UC 304	5		IV b-c
UC 306(?)	1		IV b-c
UC 308	6	Lavoie / Vauquois-Les Allieux	IV B
UC 319	7	Vauquois-Les Allieux	IV d - V a
UC 324	1	Vauquois-Les Allieux	IV d - (V a ?)
UC 334	4		IV d - V a
UC 351=354	1		IV d
NS 1003	2	Avocourt	IV b-c
NS 1025	1	Vauquois-Les Allieux	IV c
NS 1037	1		IV d - V a
NS 1038	1		IV d - V A
NS 1055	3	Vauquois-Les Allieux	360 - 390/400
NS 1138	1		IV B
NS 1197	3		IV d - V a
NS 1200	15		V A
NS 1227	3	Vauquois-Les Allieux	IV d - V a
NS 1228	1		IV d - V a
NS 1229	4	Vauquois-Les Allieux	360 - 390/400
NS 1240	1		IVB
NS 1242	1		IV d - V a
NS 1274	1		V A
NS 1281	2		IV b-c
NS 1289	1	Île-de-France	IV d
NS 1398	5		IV b-c
NS 1470	1		IV b-c
NS 2006	1	Avocourt / Vauquois-Les Allieux	IV b
NS 2050	2		IV B
NS 2057	1		IV B
NS 3026	1		IV b
NS 3091	3		IV b - IV d
NS 3134	1		IV b-c
NS 3137	1		IV b
NS 3140	2		IV b
NS 3144	1		IV b
NS 3149	1		IV b-c
NS 3156	1		IV b-c (?)
NS 3161	2		IV b-c
NS 3181	1		IV b-c
NS 3223	3		IV b-c
NS 3224	1		IV b-c
NS 3228	1		IV B
NS 3230	1		IVB - Va (?)
NS 3232	1		IV b-c (?)
NS 3233	2		IV b-c (?)
NS 3234	1		IV b-c (?)
NS 20 000	2		
NS 30 008	3		
NS 30 010	1		
unclassifiable	44		
<b>TOTAL</b>	<b>307</b>	<b>identified</b>	264

Table 24: The attested roller stamps at the south-west corner sites, with their origin (when known) and their proposed dating. From the 307 roller stamps, 264 could be identified, 44 remain unclassifiable because of their size or state of preservation. They mainly include roller stamps of Hübener (1968) groups 2 and 3.

Identified roller stamps are shown in Plates CXII-CXIX<sup>48</sup>. The identified stamps cover a date range from c. AD 320 until c. AD 450, with a well-spread chronological distribution between AD 325 and AD 425 (Fig. 36).

The publications of Hübener (1968) and Bakker (1994) list three roller-stamped types which were retrieved from the excavations by Mertens on the fort area (during the 1960s and 1970s

<sup>48</sup> Due to their fragmentary or abraded state of preservation, the following roller stamps are not illustrated: UC 1, UC 2, UC 4, UC 20, UC 24, UC 26, UC 32, UC 60, UC 93, UC 123 var., UC 159, UC 255, UC 286=327, UC 306(?), UC 351=354, NS 1025, NS 1138, NS 1240, NS 1242, NS 1274, NS 1330, NS 1470, NS 3026, NS 3134, NS 3149, NS 3156, NS 3230, NS 3232, NS 20 000, NS 30 008 and NS 30 010.

excavations at the western defensive area): UC 45 (AD 390-430), UC 100 (IVd) and NS 1018 (IVd-Va).

From the roller stamps of which the origin could be determined, the main proportion was produced at Vauquois-Les Allieux, the largest pottery site known and most studied in the Argonne region (see Feller and Brulet 1998). Striking is the presence of the stamp NS 1289 from Île-de-France, a '*molette francilienne*', a type of stamp which had a limited distribution area (Van Ossel 2011, 240: Fig. 9). This fragment was recovered from the post-Roman dark earth level.

The roller stamps from Chatel-Chéhéry, with a production not earlier than the very end of the 4th century (Brulet 2010d, 250), and from Pont-des-Quatre-Enfants, only producing in the 5th century (Brulet 2010d, 246), are completely absent, but this does not necessarily have any chronological implications (pers. comm. W. Dijkman).

## 9. Reparation and re-use

The significance of the mortaria in the samian assemblage is confirmed by the number of attested reparations. In total fourteen samian fragments yielded one or more repair holes. Apart from one Drag. 37 decorated bowl and one dish Drag. 18/31R, they all represent mortaria. It emphasises the importance one gave to these vessels and the value they obviously had for their owner. Next to one Argonne Drag. 43, one Rheinzabern Drag. 43, three Argonne Drag. 45 and two Rheinzabern Drag. 45, five Chenet 328-330 mortaria (three NOG SA, two burnt) show reparations. The Rheinzabern Drag. 43 rim fragment even yielded six repair holes of which three were still filled with lead. The wear on a high number of mortaria fragments emphasises their long use and life-span. When the usage of the samian vessels is considered, mainly mortaria fragments show a surface heavily worn on the inside.

A small number of items are modified, re-used samian sherds. They represent one more aspect of residuality at the site. Several bases were intentionally shaped, with or without the removal of the footring, to obtain a disc-like object, probably for use as lid or counter. This was the case for eight Drag. 33 cup bases, three complete bases of Drag. 37 bowls and two beaker bases. The rim of a Drag. 32 or 36 was broken off and afterwards its edge sharpened. A North-Gaulish Chenet 328-330 mortarium shows a central circular perforation in the base (Plate LXXXIV: 101). Of a Trier Drag. 45 only part of the lion spout was preserved but clear traces of intentional chipping of the spout can be noticed. Finally, three samian sherds were reworked as counter: one dish fragment, one Drag. 37 sherd (Plate CV: DS1) and one Drag. 43/45 piece.

## 10. Graffiti

Only eighteen samian vessels or vessel fragments from the Roman level of the south-west corner site bear a graffito, a remarkable low number for a military site (cf. e.g. Bakker and Galsterer-Kröll 1975, 9; Haynes 2013, 319)<sup>49</sup>. Another eleven graffiti were collected from the post-Roman level; they are not discussed in detail here but they confirm the image provided by the graffiti from the Roman level. The same low number of graffiti is attested among the other pottery groups. In general, graffiti appear mostly on samian and are best represented at military sites (Bakker and Galsterer-Kröll 1975, 9). A study on the occurrence of graffiti in Britain has concluded to a decline of graffiti on military sites through time. Evans suggests that this may be related to a less communally organised fort community in the later periods (Evans 1987, 199). As such it would not

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<sup>49</sup> See e.g. Haalebos (1997, 53 (with references)) mentions many graffiti from the forts at Woerden, Vechten, Utrecht, Valkenburg and Zwammerdam at the Dutch limes. At the fort of Alphen aan den Rijn c. 0.4% of the pottery is provided with a graffito (Polak *et al.* 2004, 162).



reflect a lesser degree of literacy. This decline in applying graffiti as a late phenomenon seems to be confirmed by the Oudenburg material.

All graffiti on the samian fragments of the Oudenburg fort site were incised *post cocturam*. These written testimonies appear to reflect different functionalities.

The names on the bottom of bases are clearly signatures by the vessel owner. Graffiti on samian vessels were mostly placed on the base as they were apparently in general reversely stored (Bakker and Galsterer-Kröll 1975, 55-56). The graffiti demonstrate that samian vessels were personal items. Bakker and Galsterer-Kröll (1975, 56) concluded from their study of the graffiti from several military sites in *Germania Superior* and *Inferior* that the, generally high proportion of, graffiti on the bases of vessels should be interpreted as possession marks or distinguishing signs to avoid that other soldiers, when eating and living together, would use and damage each other's vessel (Bakker and Galsterer-Kröll 1975, 56).

graffito ID	vessel	location of graffito	general level of context	type of graffito	description
G 16	mortarium Drag. 45	bottom base	2	signature: name	SERGII C[
G 17	beaker Lud. Vseries	bottom base	4	signature: name	VIRNATTA
G 34	decorated bowl Drag. 37	bottom base	4	signature: name	MESSIC/MESSIE
G 36	dish Drag. 36R	interior base	4	signature: name	PRI
G 31	cup	bottom base	5	signature: name (abbreviation)	E (complete)
G 26	cup Drag. 33	bottom base	3	signature: analphabetic	X
G 21	decorated bowl Drag. 37	bottom base of footring	4	signature: analphabetic	X
G 24	dish Drag. 31	bottom base	4	signature: analphabetic	X
G 03	mortarium Drag. 45	bottom base	4	signature(s): analphabetic?	scratches in which several crosses can be discerned
G 02	dish	bottom base	4	signature: analphabetic	intersecting lines forming star
G 11	dish Drag. 31	bottom base	4	signature: analphabetic	crossing lines
G 27	dishR	bottom base	4	signature: analphabetic?	straight line and straight-angled line upon: fragmentary
G 33	cup Drag. 33	bottom base	5	signature: analphabetic	X
G 28	dish	bottom base	5	signature: analphabetic	X
G 01	cup Drag. 33	wall	2	text cf. ostracon	numbers?
G 29	cup Drag. 40	base of wall	2	text cf. ostracon?	JVI
G 23 a and b	dish Lud. Th	on exterior and interior body	4	text cf. ostracon?	2x uncertain letters?
G 30	decorated bowl Drag. 37	inside bottom	4	pattern cf. ostracon	intensive scratching: linear pattern

Table 25: The attested graffiti on samian vessels at the south-west corner site.

Five names or abbreviations of names can be recognised on the Oudenburg samian vessels. A Trier mortarium base bears the name SERGII C[, a *gentilicium* in genitive ('of Sergius') followed by the beginning of a cognomen starting with C (Plate CXX: 1). The bottom of the foot of a Rheinzabern beaker of the Lud. V series shows the name VIRNATTA, clearly a Celtic name (Plate CXX: 2). VIRNO exists in Martigues (Provence) as name (*L'année épigraphique* 2002, 920), but there are also other name forms known with the same radical. Anyhow, this radical points to a Celtic name (Delamarre 2007, 202). A Trier Drag. 37 bowl has the name MESSIC or MESSIE on its base (Plate CXX: 3). Messic may well have been an abbreviation for 'Messicus', a name also recognised as graffiti on pottery found at Bavay (*L'année épigraphique* 1999, 1077), at Warcq (CIL XIII 3553) and at the fort of Vindolanda (*Tabulae Vindolandenses* 175). 'Messie' is also possible though; this name has been attested at Arlon (*Inscriptions Latines de Belgique* 91). Again, *Messic/Messie* points to a Celtic name (Delamarre 2007, 132). The large 'PRI' on a Rheinzabern Drag. 36R (or Lud. Te) dish (Plate CXX: 4) can be seen as an abbreviation of the common name *Primus*, attested in large numbers for example at Xanten (Weiss-König 2010, 396), but other names such as *Primatus*, *Primigenius*, *Primitius*, *Primulus* are also possible. The same can be said of the large 'E' on the bottom of the base of an Argonne cup (Plate CXX: 5), also likely to be the initial of the owner's name<sup>50</sup>.

Apart from these 'names', another ten signs on bases or footrings can most likely be identified as owner marks. Most of these cases represent small or larger crosses, by several scholars accepted as being owner marks (Galsterer 1983, 15), possibly analphabetic signatures (for a discussion on this topic: see Weiss-König 2010, 52). They occur on two Drag. 33 cups, one from Lezoux (Plate CXX: 6) and one from Rheinzabern (Plate CXXI: 9), on one Trier Drag. 37 bowl (Plate CXX: 7) and

<sup>50</sup> Weiss-König (2010, 51) however leaves their interpretation open.

one Trier dish (Plate CXXI: 10). A burnt mortarium Drag. 45 base reveals a dense concentration of scratches in which at least two crosses can be distinguished (Plate CXXI: 11). One can wonder whether this mortarium had successive owners: was the second owner trying to erase the signature of the former when marking it as its own property? The cross-graffiti on the burnt dish base (Plate CXXI: 12) and the Rheinzabern Drag. 31 dish (Plate CXXI: 8) rather represent star-like crossing lines in the centre of the bottom of their bases. Like the X-graffiti they can be interpreted as owner marks or signatures. This is also likely for the linear graffito of another burnt *Strich*-stamped and rouletted base, however only fragmentary preserved (Plate CXXI: 14).

The totality of the signature-graffiti shows that a diversity of vessel forms were marked: mostly dishes (six items), but also cups (three items), decorated bowls and mortaria, both twice represented, and one beaker were 'named'. Dishes and cups are generally the forms that were marked most, and graffiti were in general applied on the inside of the footring (Weiss-König 2010, 48). Most of the signatures belong to fort level 4. Only the SERGII C[ graffito can be attributed to fort level 2 and one 'cross' signature on a Lezoux Drag. 33 cup to fort level 3. The presumed initial 'E' signature and two 'cross' signatures, one on a Drag. 33 and one on a dish, were found at fort level 5; since this level is characterised by late Roman sigillata with roller-stamped decoration these finds are obviously dug-up from an earlier level.

Three samian fragments seem to have been used as ostrakon, as support of an epigraphic message. The wall of a Lezoux Drag. 33 cup found at fort level 2 shows a series of numbers (Plate CXXI: 15). Another wall sherd from a Lezoux Drag. 40 from fort level 2 bears the letters ]VI and represents most likely a fragment of an ostrakon (Plate CXXII: 16). The rim sherd of a Trier dish type Lud. Th found at fort level 4 is densely scratched on both interior and exterior (Plate CXXII: 17). Both graffiti possibly represent a stylised text; some presumed letters can be discerned. On the interior a V and an I seem to be linked, followed by an A; the graffito on the exterior however remains undefinable. The interior of the base of a Drag. 37 bowl found at fort level 4 shows a graffito of intensive scratching with a linear pattern with more or less parallel lines (Plate CXXII: 18). Between some lines smaller transversal lines can be observed. Maybe this ostrakon represents a game or some kind of listing.

Apart from the samian assemblage, several graffiti were found on amphorae fragments, mainly belonging to Dressel 20 amphorae (23 graffiti *ante cocturam*, 4 graffiti *post cocturam*), three to Gauloise 4 amphorae (two graffiti *ante cocturam*, one with two graffiti *post cocturam*)<sup>51</sup> (see Appendix 14). Apart from the samian and the amphorae, only three other graffiti were found in the totality of the ceramic assemblage belonging to the Roman level<sup>52</sup>.

Although a very small assemblage, the 'name' graffiti of the samian assemblage represent a very important contribution as they are one of the few epigraphic elements of the site.

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<sup>51</sup> While the graffiti *ante cocturam* have a very different functionality than the graffiti on the samian fragments discussed above, some of the graffiti *post cocturam* can be part of ostraca (see Appendix 14). Specific attention is to be drawn to the *post cocturam* graffito on the base fragment of a North-Gaulish Gauloise 13 amphora. The amphora must have been broken before the text was scratched or else the text would have been written upside down; this fragment, belonging to fort level 4, can therefore be interpreted as an ostrakon. The graffito probably reads as [VICT]oris(?) xx[x] (identification by P. Monsieur).

<sup>52</sup> Only one of these graffiti joins the ones described above. It is located on the bottom of the base of a marbled ware vessel, possibly a jug, and attributed to fort level 5. The graffito, incised *post cocturam* represents crossing lines which can be interpreted in the same way as the alphabetic signatures on the samian vessels. The two other graffiti are made *ante cocturam* and represent a different type of information. The shoulder fragment of a flagon found in the earliest level of the earthen rampart shows an incomplete graffito, most likely a content or size indication. A small, unclear graffito on the inside of a wheel-turned reduced bowl, just underneath the rim part, close to the spout, may equally have been a size indication.

## 11. Distribution and chronology in relation to the stratified evidence

### 11.1. General aspects and the significance of the samian assemblage as a chronological indicator

At the Oudenburg site, the sherd counts and MNI's increase when climbing up in the fort levels up to fort level 4, after which there is a certain decline (Fig. 31-32)<sup>53</sup>. Nearly 45% of the number of samian sherds found within the Roman level are assignable to fort level 4 (Table 26). However, this increase should not be seen as an indication for an expansion of the samian supply to the fort site. Fort period 4 represents a much longer occupation, thus a longer period of incoming samian. Besides, the increasing number is probably also linked to the digging up of older fragments as a consequence of the building activities, the related earthworks and debris removals which took place at each level. This was not only the case when a new fort was built, but also happened during the several building phases within the successive main fort periods of which the renovations at every level bear witness. At fort period 4, the fort seems to have undergone a substantial transformation, the most important being the construction of the first stone wall. The intense building activities clearly involved large-scale digging, levelling and redeposition of large amounts of soil and older debris. From this point of view, the high percentage of material from fort level 4 is most likely more a reflection of the physical activities or actions on the field during that period, rather than an indication for an increase in supply of samian pottery. This can partly be confirmed by the earlier samian sherds found at this level. This phenomenon of residuality also has consequences for the interpretation of the material, especially from that particular fort period. It means we have to be well aware of the high amount of residual material, not only in samian pottery, but also in other find categories.

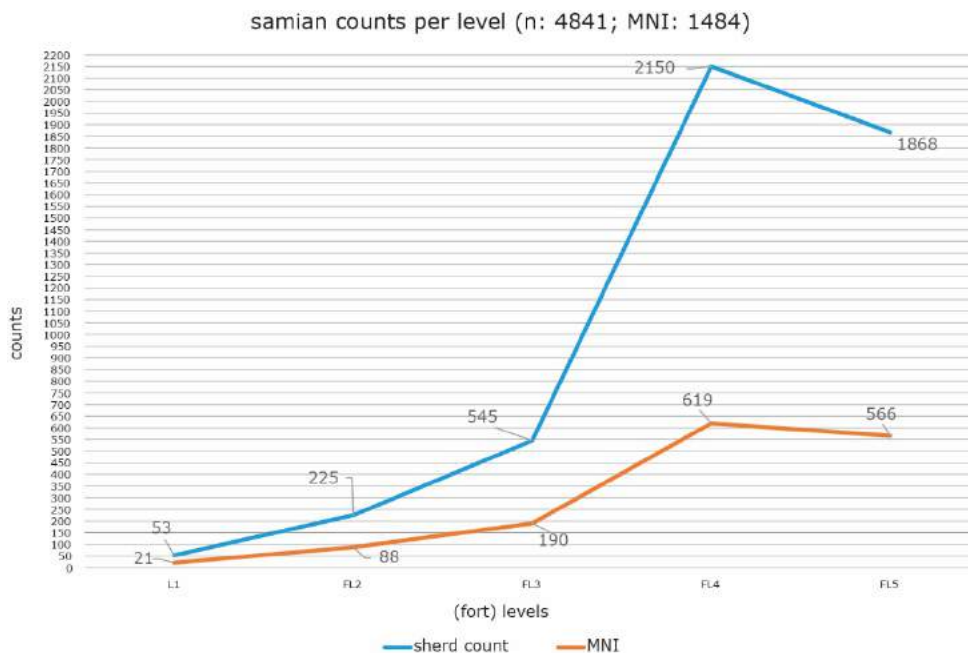


Fig 31: Samian counts per level within the Roman level, based on sherd count versus MNI.

<sup>53</sup> The MNI quantification method implies that the subgrouping of an assemblage into phases results in a recalculation of the MNI (cf. Symonds and Haynes 2007, 69). Therefore, the sum of the MNI's of the respective levels is higher than the total MNI of the assemblage studied in its totality.

level	n	%n	MNI	%MNI
<b>L1</b>	53	1,1	21	1,4
<b>FL2</b>	225	4,6	88	5,9
<b>FL3</b>	545	11,3	190	12,8
<b>FL4</b>	2150	44,4	619	41,7
<b>FL5</b>	1868	38,6	566	38,1
<b>TOTAL</b>	<b>4841</b>	<b>100</b>	<b>1484</b>	<b>100</b>

Table 26: Proportional distribution of the samian in the Roman level, based on sherd count and MNI.

In this respect, it is equally very important to be aware of the dating restrictions that emerged during the study of the samian wares, concerning the 3rd century, with wide date ranges for the East-Gaulish samian in contrast to the South- and Central-Gaulish samian of the 1st and 2nd centuries (cf. Bird 1993, 1). In addition, Delage (2003) remarked that 3rd-century samian is often dated too early, a problem mainly encountered for the Central-Gaulish samian<sup>54</sup>.

SAMIAN FABRICS in MNI	level 1	level 2	level 3	level 4	level 5	TOTAL
<b>LG SA</b>	1	2	2	5	4	14
<b>LMV SA</b>			2	1	3	6
<b>LEZ SA</b>	9	27	26	27	38	127
<b>CG SA</b>	1			1	6	8
<b>MAD SA</b>	1			1	2	4
<b>ARG SA</b>	1	28	40	60	118	247
<b>BLW SA</b>				1		1
<b>TRI SA</b>	3	11	39	165	109	327
<b>RHZ SA</b>	3	13	59	212	104	391
<b>EG SA</b>	2	1		8	4	15
<b>NOG SA</b>			2	21	49	72
<b>burnt</b>		6	20	117	129	272
<b>TOTAL</b>	21	88	190	619	566	<b>1484</b>

SAMIAN FABRICS in %MNI	level 1	level 2	level 3	level 4	level 5	TOTAL
<b>LG SA</b>	4,8	2,3	1,1	0,8	0,7	0,9
<b>LMV SA</b>	0,0	0,0	1,1	0,2	0,5	0,4
<b>LEZ SA</b>	42,9	30,7	13,7	4,4	6,7	8,6
<b>CG SA</b>	4,8	0,0	0,0	0,2	1,1	0,5
<b>MAD SA</b>	4,8	0,0	0,0	0,2	0,4	0,3
<b>ARG SA</b>	4,8	31,8	21,1	9,7	20,8	16,6
<b>BLW SA</b>	0,0	0,0	0,0	0,2	0,0	0,1
<b>TRI SA</b>	14,3	12,5	20,5	26,7	19,3	22,0
<b>RHZ SA</b>	14,3	14,8	31,1	34,2	18,4	26,3
<b>EG SA</b>	9,5	1,1	0,0	1,3	0,7	1,0
<b>NOG SA</b>	0,0	0,0	1,1	3,4	8,7	4,9
<b>burnt</b>	0,0	6,8	10,5	18,9	22,8	18,3
<b>TOTAL</b>	100	100	100	100	100	100

Table 27: Chronological distribution of the represented samian fabrics in the Roman level, based on MNI and MNI%.

Another major problem encountered while studying this assemblage is the dating of individual decorated and stamped vessels coming from Trier and Rheinzabern during the late 2nd and 3rd century. One of the sore points is generally well-known: the evidence that both factories reused earlier moulds towards the middle of the 3rd century (Bird 1993, 3; see for Trier: Huld-Zetsche 1972, 81-88; see for Rheinzabern: Bittner 1986, 254-255).

Therefore, for a valuable perception of chronology and supply of samian wares, it is important to use contextually, quantitatively and qualitatively reliable assemblages, representative for the

<sup>54</sup> Delage also draws attention to the problems of the chronological characterisation of the Argonne and Rheinzabern samian in the 3rd century due to a deficit of chronological studies (Delage 2003, 183: footnote 1).

successive fort levels, where possible considered in relation to external chronological elements like dendrochronological datings and coin evidence. For the first two fort levels such contexts appear to be very scarce; hardly any context contains a significant amount of samian. Moreover, the first two fort levels cannot rely on valid external chronological elements. This changes from fort level 3 onwards.

Apart from studying specific samian contexts, and despite the residual element, it is nevertheless worth looking at the samian found at each level in general. Relative proportions of fabrics, forms and types and the latest samian vessels at every fort level create a preliminary chronological framework and a first impression of the character of the samian supply (Table 27; Fig. 32-33).

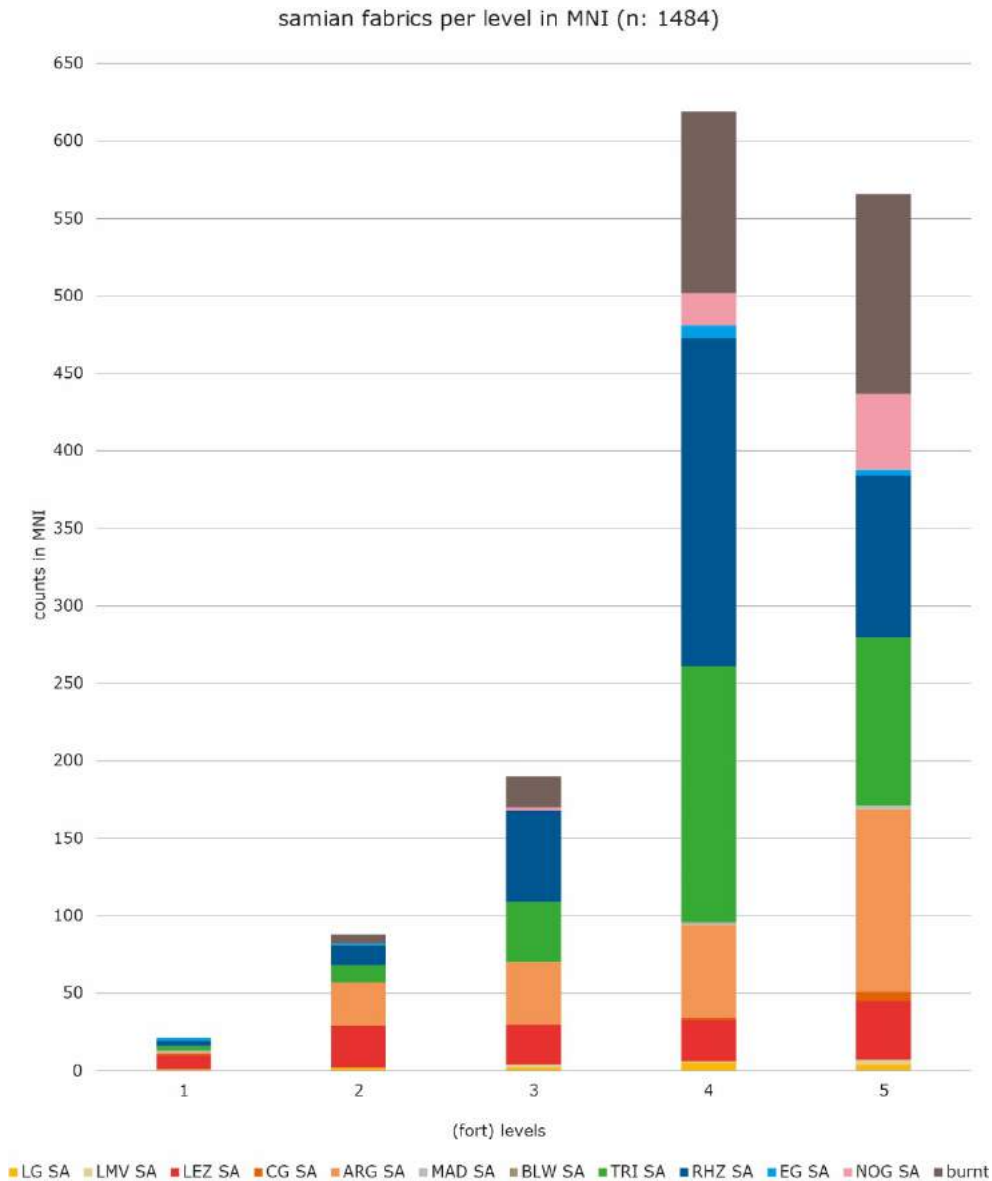


Fig 32: Distribution of samian fabrics in the Roman level, based on MNI.

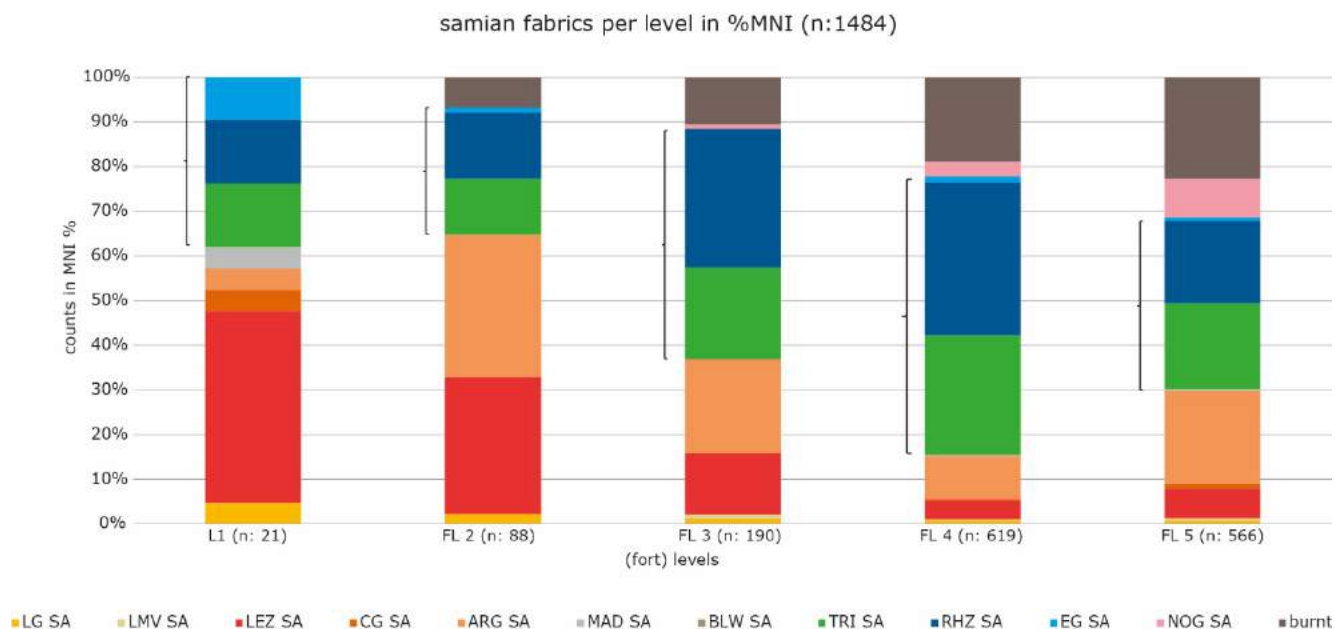


Fig 33: Distribution of samian fabrics in the Roman level, in MNI percentages. The curly brackets group the East-Gaulish fabrics.

## 11.2. The samian wares of level 1

### 11.2.1. The samian assemblage of level 1 in general

Since level 1 comprises both military and pre-fort features, its samian assemblage is definitely socially and chronologically mixed. Therefore only the latest samian sherds can with certainty contribute to our understanding of the dating of the first fort level. At this level, the Lezoux fabric is best represented with nine MNI out of 21, while Argonne and La Madeleine both count for only one, and Trier and Rheinzabern both for three. The dominance of Lezoux together with the low number of East-Gaulish products may situate this fort level still in the 2nd century AD. Within the plain ware assemblage the fragment of a Drag. 43/45 is worth emphasising; both Drag. 43 and 45 only first appear after c. AD 170 (Webster 1996, 53, 56). Level 1 yielded three stamped samian fragments. Apart from one rosette stamp from Lezoux (SS81) and one unidentifiable stamp (SS8), the stamp from the Trier potter Cerialis vii was found on a Drag. 18/31 (SS15). This potter was active in the period AD 140-180. Five fragments of Drag. 37 bowls were counted for level 1, of which four yield an identifiable decoration. The fragment of a decorated bowl made by L. Cosius (Virilis) of La Graufesenque (DS5) dated to AD 75-130 (largest range in literature), is clearly a fragment that can be attributed to earlier activities on the site. The fragment of a bowl decorated by Sacer of La Madeleine (DS20), active AD 125-155, may also represent a residual piece or may have been a vessel already in use for a long time. Fragments of decorated bowls from Iustus ii of s (DS13) (AD 160-200) and from Comitalis of Trier (DS62) (AD 170-240) confirm a *terminus post quem* date of AD 170 for fort level 1.

### 11.2.2. Closed contexts of level 1

The complete samian cup Drag. 33 of Trier, found in the central front posthole of a construction built with the sleeper beam technique in combination with posts situated underneath the earthen rampart of fort level 1 and obviously predating fort level 1, yields a first *terminus post quem* element for the first military occupation (see Chapter II, Section II.4.2: Fig. 21; for location of the context: Plate XXVIII, d). Made in the Trier fabric, the Drag. 33 cup type can generally be dated to the second half of the 2nd – first half of the 3rd century (Webster 1996, 45). Its small size, the slightly concave walls and the lack of a groove on the wall externally tend to point to a later 2nd-century date.

For fort level 1, no external chronological elements like dendrochronological or radiocarbon dates are at hand. Only one coin was found at level 1, an *as* or *dupondius* only generally dated to the 1st to 3rd century (COIN0339).

Level 1 hardly yielded any pottery context with a considerable number of samian fragments. At the base level of the earthen rampart, which can be assigned to the installation of fort level 1 (context OS 30905), only nine samian sherds were recovered, representing five MNI (for location of this context: see Addendum 10). The only decorated bowl fragment with part of the ovolo is too small to identify. The plain wares are represented by a cup Drag. 33 from Lezoux, a dish Drag. 18/31 from Lezoux and an undetermined body fragment of an Argonne vessel. A Rheinzabern rim and body fragment represent at least one Drag. 31 individual. A small rim fragment of East-Gaulish fabric cannot be specified further.

More information can be retrieved from the context OS 30916, representing a fire layer full of pottery fragments in the earthen rampart, which can be assigned to the first fort level based on stratified evidence (OS 30916: see Addendum 10 for its location). This OS 30916 pottery assemblage comprises 23 samian fragments, accounting for at least ten individuals (Table 28; Plate CXXIII). Most of the samian from this context was supplied by Lezoux: 18 fragments for 6 MNI. A Drag. 37 bowl was most likely made by Iustus II/ii, active in the period AD 160-200 (DS13) (Plate CXXIII: 2). Another Drag. 37 rim fragment has no freeze preserved (1). The cup Drag. 33 is represented by two Lezoux individuals (3 and 4). A complete profile of a Curle 23 dish/shallow bowl shows a five-fold rosette (SS81) (5). Another stamp (SS8) was found on the base of a Lezoux dish or bowl but is not identifiable due to its fragmentation (7). Apart from fragments of a Drag. 18/31 and possibly two Drag. 18/31 or 31 dishes, the presence of a body fragment from a mortarium Drag. 43/45 in Lezoux fabric is significant since mortaria were only produced from c. AD 170 onwards (Webster 1996, 56). A rim fragment in a not specified Central-Gaulish fabric belongs to another Drag. 18/31 or 31 (6). The East-Gaulish productions each represent only one individual in this assemblage. A Drag. 37 bowl from La Madeleine (body fragment) was decorated by Sacer who was active AD 125-155 (DS20) (8). A base fragment from a Trier dish or bowl shows the stamp of Cerialis vii, most likely active in the period AD 140-180 (SS15) (9). A rim fragment can only be generally attributed to an East-Gaulish Drag. 18/31 (10). The Rheinzabern fabric is only represented by a body fragment of a mortarium Drag. 43/45, nevertheless an interesting chronological element.

OS 30916	n	MNI
<b>LEZ SA</b>	18	6
<b>CG SA</b>	1	1
<b>MAD SA</b>	1	1
<b>TRI SA</b>	1	1
<b>EG SA</b>	1	
<b>RHZ SA</b>	1	1
<b>TOTAL</b>	<b>23</b>	<b>10</b>

Table 28: The samian fabrics represented in context OS 30916, in sherd count and MNI.

### 11.2.3. Chronological conclusions for fort level 1 based on the samian

The presence of the potter Iustus II places the construction of the first fort after AD 160. In one of the post-trenches of Construction IV, a fragment of a Drag. 37 bowl, decorated by Comitalis of Trier (AD 170-240), enables to shift this date to even later in the 2nd century. This date is confirmed by the several mortarium fragments, as mentioned above a form only produced from c. AD 170 onwards. The dominance of Lezoux and the absence of clear 3rd-century elements seem to indicate that the disposal of the pottery still occurred in the 2nd century.



### 11.3. *The samian wares of fort level 2*

#### 11.3.1. *The samian assemblage of fort level 2 in general*

The proportional quantities of Lezoux and Argonne vessels, equally shared with 28 MNI for the Argonne and 27 for Lezoux, are standing out for this fort level 2 (Table 27). Trier and Rheinzabern only count for respectively 11 and 13 MNI. Seven samian stamps were recovered.

Apart from two unidentifiable stamps, they comprise two intradecorative name stamps, of Iulius viii (SS55) and Iulianus iii (SS48), both active at Rheinzabern in the period AD 220-255, and three stamps on dishes: Drucaursus of Trier (SS18)<sup>55</sup> (AD 160-260), Eiritus of Rheinzabern (SS44) (AD 180-240) and Materninus iii of Rheinzabern (SS55) (AD 160-260). The intradecorative stamps of Iulius viii and Iulianus iii conclude to AD 220 as *terminus post quem* date for fort level 2. The decorated fragments found at this level 2, nineteen in total, do not yield extra chronological indicators. The La Graufesenque bowl decorated by Mercator, Germanus or a related potter (DS3) clearly represents a residual find. The Argonne products of Gesatus (DS28), Eburus (DS29 en DS30) and Africanus or Germanus (DS31), all dating not later than c. AD 200 at the latest, neither contribute to the dating of this level. The Lezoux vessels of Cinnamus ii (DS8 and DS9) and of Servus II (DS12) are respectively dated to AD 135-180 and AD 160-200. The revised date range for Cinnamus until AD 220 suggested by Delage (2003, 187: Fig. 2) may fit in well with the dates offered by the other samian at this level.

Three Trier decorated fragments, one 'spätere Ausformung' from Werkstatt II (DS47) and two from the Censor-Dexter group (DS56 and 58), are indicative; however, their date range is too large. The two decorated bowls of the Iulius II-Iulianus I group (DS118 and DS120), both confirmed by their intradecorative stamps mentioned above (respectively SS48 and SS49), are the main chronological indicators within the samian assemblage for this level, situating this fort occupation after AD 220.

#### 11.3.2. *Closed contexts of fort level 2*

The only available 'absolute' dating evidence for fort level 2 is offered by the radiocarbon date of the remains of a charred wooden beam, which was preserved in one of the construction slots of the hospital building at this level. The date of 1835±25BP resulting in a very large calibrated date range of 130AD (68.2%) 215 AD or 120AD (93.7%) 250 AD, is however of no help to clarify the chronology of this level. Neither does the coin evidence. A *sestertius* of the 2nd to 3rd century was collected from a feature dated to level 1 or 2 (COIN0997). Of fort level 2, only three *sestertii* assigned to Antoninus Pius (138-161) (COIN0193, 1142, 0771), next to four undetermined coins, of which two *sestertii* (COIN0159, 0995) and one as or *dupondius* (COIN0155), can be mentioned.

Only two samian contexts can be selected for fort level 2, both containing a small samian assemblage. These assemblages were retrieved from drainage gully OS 23966-70920-83780 and pit OS 70977 (cf. Addendum 10 for their location).

##### 11.3.2.1. *Drainage gully OS 23966-70920-83780*

The drainage gully yielded sixteen samian fragments, accounting for eleven MNI (Table 29; Plate CXXIV-A). The Lezoux products dominate with eight fragments for six MNI. A small rim fragment belongs to a beaker Déch. 72. At least three Lezoux cups type Drag. 33 can be counted (Plate CXXIV: 1-3). They attract attention with their large diameters – especially example (2) has a very wide-standing, flaring wall –, a typical feature for East-Gaulish Drag. 33 cups in their 3rd-century evolution. The Lezoux assemblage comprises furthermore a base of a Drag. 18/31 or 31 (4) and a body fragment of a mortarium Drag. 45. The Argonne products are represented by a Drag. 30R bowl (5) and a cup Drag. 33 (body fragment). The rouletted Drag. 30 was mainly a 2nd-century product. The Trier potter Comitialis was responsible for the decoration of the Drag. 37 bowl in the

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<sup>55</sup> This stamp was found in a pit of which it cannot be concluded whether it belonged to level 1 or 2, based on the stratified evidence. Therefore it is included in the level 2 assemblage.

assemblage. This potter and his group were active over a long period of AD 170-240 (DS63). Important is the presence of a complete profile of a mortarium Drag. 45 in Trier fabric. On its base it bears a graffito *post cocturam* with the name SERGII C[. Rheinzabern is only represented by a Drag. 32 dish.

OS 23966 / 70920 / 83780	n	MNI
<b>LEZ SA</b>	8	6
<b>ARG SA</b>	2	2
<b>TRI SA</b>	5	2
<b>RHZ SA</b>	1	1
<b>TOTAL</b>	<b>16</b>	<b>11</b>

Table 29: The samian fabrics represented in context OS 23966/70920/83780, in sherd count and MNI.

#### 11.3.2.2. Pit OS 70977

Pit OS 70977 contained only eight samian fragments, accounting for five MNI (Table 30; Plate CXXIV-B). The Lezoux potters were responsible for two cup forms, a 'classic' Drag. 46 (Plate CXXIV: 1), a predominantly 2nd-century form (Webster 1996, 57) and a Drag. 33 (2). Another Drag. 33 cup was made at Trier (4); its large size and flaring form indicate a 3rd-century date. The Censor-Dexter group from Trier produced the decorated bowl Drag. 37 of which only a body fragment was preserved (DS56) (3). This potter group only yields a wide date range of AD 180-240. Only one rim fragment from a Drag. 18/31 or 31 dish/shallow bowl was made in the Rheinzabern fabric (5). This assemblage seems to indicate a date in the early 3rd century.

OS 70977	n	MNI
<b>LEZ SA</b>	5	2
<b>TRI SA</b>	2	2
<b>RHZ SA</b>	1	1
<b>TOTAL</b>	<b>8</b>	<b>5</b>

Table 30: The samian fabrics represented in context OS 70977, in sherd count and MNI.

#### 11.3.3. Chronological conclusions for fort level 2 based on the samian

Both contexts of fort level 2 are illustrative for the limitations of small samian assemblages for dating. As they represent the largest samian contexts for fort level 2, the problems for narrow dating are obvious. Apart from the Drag. 37 fragments present in the key contexts, another two Drag. 37 fragments were found in very significant features, decisive for the chronological outline of this fort level. A fragmented, but almost complete Rheinzabern Drag. 37 bowl decorated by Iulius II-Iulianus I (confirmed by an intradecorative stamp by Iulius viii) (DS118) was found scattered over two nearby pits to the south of the hospital. A body fragment of a Drag. 37 decorated by the same potter (group) (DS120) was recovered from the doubled construction slot at the north side of the hospital. This potter (group) was active in AD 220-255; hence, the installation of fort level 2B with the building of the hospital is to be situated after at least AD 220. This may even be shifted to after AD 233 as scholars have proposed (see before). Anyhow, it has to be taken into account that this fort level 2B was preceded by an earlier phase. The absence of the cut-glass technique and of the Strich stamps so characteristic for the mid-3rd-century concludes to an end date prior to that period.

### 11.4. The samian wares of fort level 3

#### 11.4.1. The samian assemblage of fort level 3 in general

At fort level 3, the Rheinzabern ware takes the lead for the first time, with 59 of in total 190 MNI (31.1%) (Table 27; Fig. 32-33). Both Argonne and Trier are equally quantified with respectively 40 and 39 MNI. The Lezoux fabric is still represented by 26 MNI (13.7%). The North-Gaulish fabric

NOG SA appears for the first time, although very limited (ten sherds; 2 MNI). According to Brulet (2010e, 272) the earliest North-Gaulish products were only made in the transition period end of 3rd – beginning of 4th century. Of these ten North-Gaulish sherds recovered at level 3, seven sherds belong to the same individual, an imitation of a Drag. 37R, with a cross joining sherd at fort level 4. The fragments of this individual assigned to fort level 3 all originate from the upper fillings of a pit, belonging to the end of this level.

From the fourteen name stamps on vessels found at fort level 3, seven could be identified. Apart from an intradecorative stamp by Iulianus iii (SS49) (AD 220-255), one Sabinus viii occurs on a cup Drag. 33 (SS6) (AD 160-200). Four dishes were stamped by Crassiacus of Rheinzabern (SS39) (AD 180-220), Nundinus ii of Rheinzabern (SS56) (AD 160-260), Onnior of Rheinzabern (SS58) (AD 160-260) and Patruinus ii of Trier (SS24) (AD 200-260). Another dish was marked XIATIVAV, most likely an illiterate stamp; a parallel was found at Trier (Frey 1993, 92 and Taf. XVI, 21). Apart from these fourteen name stamps, three so-called *Strichs* were found, the earliest of this type at the Oudenburg site. Apart from one *Strich* on a burnt fragment (SS95), two *Strich* stamps originate from Rheinzabern (SS91 and SS92). According to Bird (1993, 3) these *Strichstempel* or line-stamps are dated towards the middle of the 3rd century.

The decorated samian assemblage found at fort level 3 cannot contribute more specifically to this chronology. The vessels of Censorinus ii (DS11) and of Mercator II (DS14), both from Lezoux, were originally dated not later than the end of the 2nd century. As already discussed, revised date ranges suggested by Delage (2003) push forward the end dates; the end date or at least the distribution of Mercator II bowls is now situated around AD 250 (Delage 2003, 187: Fig. 2), making it feasible that these vessels were found in their original level. As Delage also mentioned, the same chronological problem may be occurring for the Argonne products (see Delage 2003, 183: footnote 1). At fort level 3 one product of the Tocca group (DS21) was found and two Drag. 37 bowls made by Tribunus of Lavoye (DS25 and DS26). The identified Trier decorating workshops found at this level are those of Werkstatt II 'spätere Ausformung' (DS48), Atillus-Pussosus (DS72) and Dubitatus-Dubitus (DS73). The identified potters of decorated bowls from Rheinzabern are Arvernicus-Lutaeus (DS89), Comitalis IV (DS101), Comitalis V (DS105 and DS106), Iulius II-Iulianus I (DS121), Lucanus II (DS 91) and Verecundus II (DS95); other fragments cannot be attributed to a specific potter. The attested Trier and Rheinzabern potters fit well into a time-span around the middle of the 3rd century but their chronological ranges are too wide to specify the *terminus post quem* date of AD 220.

#### 11.4.2. Closed contexts of fort level 3

The only external chronological indicator for fort level 3 is given by coin evidence. This level yielded one *antoninianus* of Gordianus III (238-244) (COIN0987), a *terminus post quem* date for this fort occupation. All other coins of this level are earlier issues and remain mainly undetermined.

Two pits and a gully of fort level 3 each contained a substantial samian assemblage yielding chronological information for this level (for their location: see Addendum 10).

##### 11.4.2.1. Gully OS 1169

Although gully OS 1169 only yielded twelve samian sherds or seven MNI, the assemblage comprises interesting chronological indicators for fort level 3 (Table 31; Plate CXXV-A). Except for three burnt body fragments of which one belongs to a Drag. 36 dish, the samian products can be attributed to the Argonne and, mainly, to the Rheinzabern workshops. The Argonne is represented by the rim of a Drag. 38 collared bowl and a large rim fragment of a Drag. 45 mortarium (Plate CXXV: 1). The Rheinzabern assemblage contains a beaker Déch. 72 / Lud. VSb with cut-glass decoration of which more fragments were dug-up in later levels (2). A body fragment of another beaker of the same type and decoration belongs to the beaker of which the largest part was found in key context OS 80925 of fort level 3 (see further) and which was found scattered over different levels. A beaker footring can only be generally identified as belonging to a beaker of the Lud. V series. The

Rheinzabern fabric is furthermore represented by a Drag. 36 dish rim, a Drag. 31 body fragment and a Drag. 43/45 wall sherd, besides an undetermined piece.

OS 1169	n	MNI
<b>ARG SA</b>	2	2
<b>RHZ SA</b>	7	5
<b>burnt</b>	3	0
<b>TOTAL</b>	<b>12</b>	<b>7</b>

Table 31: The samian fabrics represented in context OS 1169, in sherd count and MNI.

The appearance in this context of the cut-glass decorated beakers is very significant since Bird has demonstrated, based on British assemblages, that they can be dated well into the 3rd century (Bird 1993, 4).

#### 11.4.2.2. Pit OS 71445

Pit OS 71445 only contained eight samian fragments, representing at least five individuals (Table 32; Plate CXXV-B). Interesting is the presence of at least three mortaria. Apart from one Argonne Drag. 43 mortarium rim (Plate CXXV: 1) and one burnt mortarium fragment, the assemblage contains only Trier and Rheinzabern products. A collar fragment of a Trier Drag. 43/45 mortarium, a Drag. 31 base with unidentifiable stamp (SS31) (2) and a dish fragment originate from Trier. The Rheinzabern potteries are responsible for a Drag. 37 rim (no freeze preserved), a Drag. 45 mortarium fragment and an unidentified wall sherd.

OS 71445	n	MNI
<b>ARG SA</b>	1	1
<b>TRI SA</b>	3	2
<b>RHZ SA</b>	3	2
<b>burnt</b>	1	0
<b>TOTAL</b>	<b>8</b>	<b>5</b>

Table 32: The samian fabrics represented in context OS 71445, in sherd count and MNI.

#### 11.4.2.3. Pit OS 80925

The large pit OS 80925 contained a samian assemblage of 28 fragments, accounting for at least sixteen individuals (Table 33; Plate CXXV-C). Cross joining sherds across the pit confirm that the content of its filling-in can be considered as a homogeneous assemblage. The samian spectrum is dominated by East-Gaulish products. The Central-Gaulish potters are represented by a Drag. 33 cup (complete profile) (Plate CXXV: 1) and a body fragment of a Drag. 43/45 mortarium. A complete profile of a Drag. 36 dish is a rare product from Les Martres-de-Veyre (2). Since the export of les Martres-de-Veyre covered the period c. AD 90 to 160/170, this fragment is most probably a dug-up item from level 1, if not a residual piece from earlier features on the site. The Argonne fabric is represented by a Drag. 45 mortarium rim with lion head spout (4) and a body fragment of a dish. Another body fragment belongs to a Drag. 37 decorated bowl by the hand of Dubitatus-Dubitus of Trier, active AD 200-260 (4). Other Trier fragments are a rim (5) and two bases of Drag. 31(R) dishes (6). The Rheinzabern spectrum dominates with two beakers, two dishes Drag. 36 (9 and 10) and at least one Drag. 43 mortarium, represented by a rim fragment but to which a base also may belong (11). A large body fragment is part of a plain beaker Lud. Ve (7); wall sherds with cut-glass come from a beaker Lud. VSb (8) of which joining sherds were found in context OS 1169 (see before) and in later levels as dug-up material. The East-Gaulish assemblage is completed with another Drag. 33 cup (12). Fragments from a Drag. 36 dish (14), a possible Drag. 31 dish and a Drag. 45 mortarium are burnt. Very significant is a central base fragment of a Drag. 18/31 with line-stamp (13). Although burnt, the presence of a *Strich* stamp (SS95) points to its East-Gaulish origin and its mid-3rd-century date.

OS 80925	n	n%	MNI	MNI%
<b>LEZ SA</b>	5	18,5	2	12,5
<b>LMV SA</b>	2	7,4	1	6,3
<b>ARG SA</b>	2	7,4	2	12,5
<b>TRI SA</b>	4	14,8	3	18,8
<b>RHZ SA</b>	9	33,3	5	31,3
<b>EG SA</b>	1	3,7	1	6,3
<b>burnt</b>	4	14,8	2	12,5
<b>TOTAL</b>	<b>27</b>	100	<b>16</b>	100

Table 33: The samian fabrics represented in context OS 80925, in sherd count and MNI.

#### 11.4.2.4. Construction slot OS 8970

An interesting addition to the former assemblages is formed by the highly-decorated Rheinzabern dish found in construction slot OS 8970, the southern construction slot of Unit IVa, interpreted as a fort level 3B construction. The incised decoration, one of the three decoration techniques represented in this vessel (Plate LXXVII), most likely dates this dish around the middle of the 3rd century. Its exquisite character assumes that it did not belong to a regular soldier but rather to an officer or another member of the high-ranked military. The dish was found scattered over different levels. The complete profile, representing nine fragments, was found in the construction slot in question, another three fragments in a nearby layer assigned to the same level. Twelve fragments were found as dug-up pieces in fort level 4 features, one in fort level 5 and two in later levels.

#### 11.4.3. Chronological conclusions for fort level 3 based on the samian

The most important chronological indicators for fort level 3, also present in the samian key context assemblages, are the *Strich* stamps and the cut-glass decorated beakers. Both are seen by Bird as elements typical for the late East-Gaulish productions. Especially the *Strich* stamps can be dated towards the mid-3rd century (Bird 1993, 3).

### 11.5. The samian wares of fort level 4

#### 11.5.1. The samian assemblage of fort level 4 in general

At fort level 4, the Rheinzabern and Trier potteries are the main suppliers of the samian ware with respectively 212 and 165 MNI of a total MNI of 617 (respectively 34.2% and 26.6%) (Table 27; Fig. 32-33). The Argonne ware still represents 61 MNI (9.8%), while the Lezoux products count for only 27 MNI (4.4%). At first sight, the Lezoux products seem to represent residual, dug-up finds from earlier levels as Lezoux production ceased around AD 240. As will be clear further, some Lezoux vessels seem to have been still in use. This fort level yielded the only identified Blickweiler fragment, clearly dug-up from the earliest features on the site. The large number of barbotine-decorated vessels, beakers with cut-glass decorations and the presence of mid-3rd-century 'Massenfund' types like the cups Massenfund 8a and 19, the bottle Massenfund 17b, the collared bowl Massenfund 15 and the barbotine-decorated cordoned Massenfund 11-12 are indications enabling to date this level at least to the middle or rather the second half of the 3rd century.

In total 61 samian stamps were found at fort level 4, of which 23 (name) stamps could not be identified. Three of the latter are illiterate of which one incised *ante cocturam* stamp originated from Rheinzabern (SS75). Another alphabetic stamp also belongs to the Rheinzabern ware (SS70); a third one is burnt (SS079). Eight *Strichs* were recovered from this level, all occurring on dishes. Two of them are burnt (SS96 and SS97), only one originates from Rheinzabern (SS93), and five *Strich*-stamped vessels were made by Trier potters (SS84, 85, 86, 87, 88). That leaves us with a total of 30 identified name stamps. Three Drag. 18/31 dishes were stamped by Lezoux potters: Albuscius ii (SS1) (AD 145-175), Cintusmus i (SS3) (AD 140-180) and Magio i (SS4) (AD 160-200); most likely residual finds at this level. Identified Argonne potters are Giamillus ii of Lavoye (SS10) (AD 140-180) and Tullus of Le Pont-des-Rèmes (SS12) (AD 150-180), their datings



being too early to consider the vessels in question as *in situ* finds. The Trier potters are represented by Apolus/Apolo (SS13) for which no parallel was found, Atilido (SS14) (AD 175-250), Dessius (SS17) (AD 200-260), Iucundus v (SS20) (AD 160-260), Mercussa (SS21) for which neither a parallel was found, Minutus (SS22) (AD 170-250) and Urbanus (SS25) (AD 190-240), who all stamped dishes. The identified Rheinzabern potters are Atta (SS32) (AD 170-220), Capitolinus (SS34) (AD 170-260), ?Cintugnatus ii (SS35) (AD 140-180), Datus (SS40) (AD 160-240), Drucaursus (SS41) (AD 160-260), twice Eritus (SS42 and SS43) (AD 180-240), Firminus ii (SS45) (AD 160-220), Flavianus ii (SS46) (AD 160-260), Giamillus v (SS47) (AD 120-200), Patruinus i (SS59) (AD 160-260), twice Severianus iii (SS63 and SS64) (AD 190-240), ?Tarentinus (SS65) (AD 175-250), Verus vi (SS66) (AD 210-260) and (Victor or) Victorinus ii, possibly two times (SS68 and SS69) (AD 210-255), all of them marking dishes. Comitialis of Rheinzabern (SS36) (AD 170-240) and Respectinus ii (SS61) (AD 220-260) marked their Drag. 37 bowls with an intradecorative stamp. While some stamps are clearly dated too early for this level and are to be considered as residual finds, the chronological range of other stamps is too large to be able to closely date fort level 4, based on these indicators. The stamps only conclude to a *tpq* date of AD 220.

The three Drag. 37 bowls from La Graufesenque (DS1, 2 and 4), mainly dated to the Flavian period, are clear residual finds from the pre-fort settlement. The same can be said of the Blickweiler decorated bowl (DS42), the La Madeleine Ware mit Eierstab C (DS19) and the Argonne products by Tribunus of Lavoye (DS22) and the Ware mit Eierstab G (DS32 and DS33). Decorated bowls from Trier are represented by Werkstatt II and 'spätere Ausformung' (DS44, DS46, DS49, DS50?), Maiiaaus (DS51?, 52 and 53?), Censor-Dexter (DS55, DS57, DS59, DS60), Comitialis (DS65?) and Afer (DS67 and DS69). Potters recognised from Rheinzabern are Reginus I/Cobnertus/Ianu (DS88), Arvernicus-Lutaevus (DS89), Cerialis group (DS94), Atto (DS96), Firmus II (DS99), Comitialis group (DS103, DS108, DS110, DS111), Helenius (DS114), Attilus (DS115), Iulius I (DS117), Iulius II-Iulianus I (DS119, DS122-126), Respectinus II (DS129), Primitivus IV (DS131), Victor II/Ianuco (DS132), Statutus II (DS133), Perpetuus (DS134). Other vessels cannot be attributed to one specific potter. Some of the Trier and Rheinzabern potters seem to be dated too early to have been an original part of this fort level. However, Bird already pointed to the evidence from both workshops for some reuse of old moulds by potters working around the middle of the 3rd century (Bird 1993, 3). The dominance of fabric TRI SA B and some vessels in TRI SA C can support this possibility for several individuals belonging to fort level 4. The potters Primitivus IV (AD 220-260), Victor II/Ianuco (AD 220-270), Statutus II (AD 230-260) and Perpetuus (AD 230-275) represent the latest workshops at Rheinzabern. With AD 230 as starting date of their production, Statutus II and Perpetuus yield the latest secure *tpq* date obtainable from the decorated samian for this level.

The production of decorated Rheinzabern samian ceased around AD 270; decorated Trier ware was no longer produced after AD 275. The 'classic' samian wares can therefore not contribute to the understanding of how long this occupation of fort level 4 continued.

Important in this respect is the North-Gaulish ware which is clearly present at this level, with 19 MNI. Four of the North-Gaulish products are related to the Les-Rues-des-Vignes productions; all other products were probably supplied by potters from the Boulogne region. The North-Gaulish vessels are mainly the mortarium type Chenet 328-330 and the collared bowl Chenet 326. These types, announcing the 4th-century repertoire, may indicate that this fort occupation continued until the very late 3rd century or even until around AD 300, the date suggested by Brulet (2010e, 272) for the start of the North-Gaulish potteries, and a date *an sich* not in contrast with the coin evidence at the site. However, with the presumed fort level 3 attribution of a few North-Gaulish fragments, the start date of the North-Gaulish production may well be shifted to an earlier date (see before).

#### 11.5.2. Closed contexts of fort level 4

Fort level 4 not only yielded the largest number of samian, both in sherd count and in minimum number of individuals, it is also best represented when considering contextually, quantitatively and qualitatively reliable samian assemblages. It is also the level best captured by external chronological indicators. While radiocarbon analysis on charred cereals from this level only yielded very wide date ranges, dendrochronological research by K. Haneca resulted in a more secure basis

for the chronological framework of this level, at least for its starting date (cf. Appendix 8, Section 2). From the growth ring pattern of boards from well OS 22926 could be concluded that the most recent ring was formed in AD 260, which results in a felling date between AD 260 and 275 (Haneca 2009). Moreover, indirect evidence is given by the beams of the outer framework of the double well OS 2562 of fort level 5. Although a 4th-century installation, the outer framework of this well appeared to be constructed with re-used construction wood. The dendrochronological analysis of these beams yielded a felling date of c. AD 266 (Haneca in Vanhoutte *et al.* 2009b). It is most likely that these beams were recycled wood from fort level 4 and that this *tpq* date is related to this level.

Considering the coin evidence, all period AD 260-274 coins and all period AD 275-294 coins were found from fort level 4 onwards. One Probus coin (AD 276-282) can also be attributed to this level (COIN0849). The coins found in the selected key contexts will be discussed below.

Four contexts were selected as samian key context assemblages: pit OS 7949 of Unit I, containing a lot of brooch production waste, the large waste-pit OS 4980, well OS 22926 and the fire layer OS 7957/7971 (for their location: see Plate XXXIV and Addendum 10).

#### 11.5.2.1. Pit OS 7949

Pit OS 7949, located in Unit I of the workshop area along the western earthen rampart, belongs to the first phase of fort level 4. At some point this depression was closed off by a clay level on top of which two – contemporaneous or successive? – hearths (hearth 3 and hearth 4) were installed. Context OS 7949 not only yielded a lot of bronze production waste, mainly related to brooch production, but also a large number of pottery sherds. They were accompanied by three coins, unfortunately not yielding any valuable dates for this context: a silver *denarius* of Antoninus Pius (COIN0690), a copper alloy *dupondius* possibly from Marcus Aurelius (COIN0689) and an undetermined copper alloy *as* (COIN0456).

OS 7949	n	n%	MNI	MNI%
<b>MAD SA</b>	1	1,2	1	3,3
<b>ARG SA</b>	6	7,3	2	6,7
<b>TRI SA</b>	21	25,6	8	26,7
<b>RHZ SA</b>	50	61,0	18	60,0
<b>NOG SA</b>	1	1,2	1	3,3
burnt	3	3,7	0	0,0
<b>TOTAL</b>	<b>82</b>	100	<b>30</b>	100

Table 34: The samian fabrics represented in context OS 7949, in sherd count and MNI.

The samian in this pottery assemblage accounts for 82 fragments, representing 30 MNI (Table 34; Plate CXXX). The samian almost completely consists of East-Gaulish products. Rheinzabern outnumber Trier with 50 against 21 fragments or 18 against 8 MNI, respectively 61.0%-25.6% and 60.0%-26.7% of the total samian counts for this context. The Argonne and La Madeleine only count for respectively two and one MNI. The La Madeleine body fragment (Plate CXXX: 1) belongs to a Drag. 37 decorated bowl, which can be attributed to the Ware mit Eierstab C group, generally dated to AD 120-190, clearly a residual item in this context. The Argonne is represented by two mortaria (2-3). One North-Gaulish rim sherd joins the complete profile of a Chenet 330 mortarium found in the nearby large waste-pit OS 4980 (see further) (Fig. 34). Striking is the presence of at least six more mortaria, all of the type Drag. 45: at least two Argonne individuals (2-3), three Trier mortaria (6-7) and one Rheinzabern example. The significant presence of mortaria in this workshop-related depression makes us wonder whether they do not represent vessels that were already broken or cracked at the time and brought to the workshop for repair. A tripartite lead item found in the same context may indicate this; it possibly represents a repair piece of which the 'legs' were joint in drilled holes to fixate the vessel.





Fig 34: A North-Gaulish rim sherd from pit OS 7949 joins the complete profile of a Chenet 330 mortarium found in the nearby large waste-pit OS 4980.

Furthermore, the Trier spectrum consists of a cup Drag. 33, a small dish NB 11b (Lud. Sch F / Gose 44) (4), at least two Drag. 31 dishes (5) and one Drag. 36 dish. The small dish NB 11b is indicative for the middle of the 3rd century (Bird 1993, 12). The Rheinzabern assemblage contains fragments of at least four Drag. 37 bowls of which one is a Drag. 37R (11). The base fragment (9) can be attributed to Perpetuus, most likely active in the period AD 230-275. The body fragment (10) belongs to a bowl possibly of the style Ware B mit Zierglied O382/383, only generally dated to the 3rd century. The ovolo on the rim fragment (8) is too fragmentary to identify. Rheinzabern is furthermore represented by at least one beaker Déch. 72 with cut-glass decoration (12), a cup Drag. 33, three dishes Drag. 31 (13, 14, 15), two dishes Drag. 36 (only one illustrated: 16), four dishes Drag. 32 (only one illustrated: 17), a dish Lud. Th or Tl (18) and a Drag. 18/31 dish (19). The preserved central part of a Drag. 31 dish base (15) presents the stamp of Severianus ii, most likely active in the period AD 190-240. The Drag. 18/31 base (19) bears a fragmentary stamp identified as of Patruinus i of Rheinzabern, only generally dated to AD 160-260. The stamp on another dish base (20) is too little preserved to identify. The samian assemblage is completed by three burnt samian fragments, of which only another Drag. 36 dish is worth mentioning.

While the potters of the stamped dishes and of the decorated bowls represent date ranges too early or too wide to specify the date of this context – only Perpetuus yields a *tpq* date of AD 230 –, the small Trier dish NB 11b (4) and the presence of a cut-glass decorated beaker (12) place this samian assemblage around the middle of the 3rd century, at the earliest. The dominance of the East-Gaulish samian with Rheinzabern taking the lead, is very representative for fort level 4.

#### 11.5.2.2. Large waste-pit OS 4980

The primary in-fill of the large waste-pit OS 4980 yielded a very large amount of pottery sherds (5640 fragments for 729 MNI) of which the samian with 233 fragments for 75 MNI represent 4.1% or 10.3% (depending on the quantification method)<sup>56</sup>. The many large potsherds, some almost intact vessels, the many cross joins of pottery found scattered throughout the different layers and the freshness of the pottery sherds, all indicate that this considerable infill happened within a short time-span and that the objects were thrown into the pit deliberately, immediately or shortly after they became unfit for use.

<sup>56</sup> These figures differ slightly from the ones presented in Vanhoutte *et al.* 2009c, since the further study of the overall samian of the site, by myself in collaboration with J. Deschieter and W. De Clercq, has led to some revisions. However, the overall picture of the samian in this context remains intact. The 'Black samian' listed in the publication could in the meantime be identified as 'classic' samian completely burnt to black, based on the find of a small unburnt joining fragment of the dish presented on Plate LXXVII. This original 'enigma' could only be unravelled through the exhaustive study of the samian of the site. This study also enabled us to identify the undetermined fragments listed in the article.

This context also contained a small coin hoard (hoard 1; COINS1450)<sup>57</sup> (see Appendix 9) next to an early *sestertius* and an undetermined coin. The hoard consisted of two connected piles of in total 32 low quality silver coins. Two coins could be identified as of Gallienus: one early type dated to AD 257-258 and one late issue dated to AD 267-268, providing a *tpq* for the infill of this waste-pit. With an absence of radiate copies, which are abundant in the final layers of fort level 4, it can be assumed that rubbish pit OS 4980 functioned in the period c. AD 267/268-275.

From this context the pottery assemblage as a whole has been published in detail (Vanhoutte *et al.* 2009c; see Addendum 18). Only the main conclusions will be repeated here. In order to be in accordance with the other samian contexts and in favour of the visual apprehension of the samian contexts available for the site, it was decided to include the samian overview table (Table 35) and the illustrations in which all forms and types are presented<sup>58</sup> (Plate CXXVI-CXXIX).

OS 4980	n	n%	MNI	MNI%
<b>CG SA</b>	4	1,7	2	2,7
<b>ARG SA</b>	9	3,9	7	9,3
<b>TRI SA</b>	104	44,6	34	45,3
<b>RHZ SA</b>	96	41,2	27	36,0
<b>EG SA</b>	2	0,9	1	1,3
<b>NOG SA</b>	6	2,6	2	2,7
burnt	12	5,2	2	2,7
<b>TOTAL</b>	<b>233</b>	100	<b>75</b>	100

Table 35: The samian fabrics represented in context OS 4980, in sherd count and MNI.

According to this assemblage, Trier and Rheinzabern supplied their products to Oudenburg in equal quantities, although Trier focussed more on mortaria and dishes, while more plain bowls (deep dishes) and beakers were supplied by Rheinzabern. The Argonne and North-Gaulish potteries only distributed their products in low numbers. Most Lezoux samian will have been residual in this context. However, the presence of a complete Drag. 38 from Lezoux is very significant. The intense use-marks and the absence of a bead-rim suggest that it was a relatively late product of the Lezoux workshops still used during fort period 4. It apparently survived for some decades and was clearly looked after well (Vanhoutte *et al.* 2009c, 107) (see also below).

The stamp of Verus vi of Rheinzabern (AD 210-260/270) (Plate CXXVIII: 51), a *Strich* stamp (Plate CXXVII: 25), decorated bowls of Iulius II-Iulianus I (AD 220-255) (Plate CXXVII: 30) and of Primitivus IV (AD 220-260) (Plate CXXVII: 29), an almost complete VMg beaker with barbotine decoration from Rheinzabern (Plate CXXVII: 33), the base of a Chenet 335 beaker (Plate CXXVI: 4), the bat-like spout on a Trier Drag. 45 mortarium (Plate CXXVII: 26), the small NB 11 dish (Plate CXXVI: 13), as well as the poor-quality decorative arrangements on several Drag. 37 bowls all point to a date around the middle of the 3rd century for this samian assemblage. With AD 269 as *tpq* date from the coin evidence, the samian was clearly already obtained a while before it was deposited into the waste-pit.

### 11.5.2.3. Well OS 22926

The dendrochronologically obtained felling date of the boards of the framework, already mentioned, places the filling in of this well with samian fragments together with other waste at least after AD 260, perhaps even after AD 275. The samian assemblage under study here belonged to the levels described as 'waste fillings I' and 'waste fillings II' (see Addendum 10); in total 65 samian fragments counting for 26 MNI. These levels also yielded 29 coins which have been studied by J. van Heesch (Coin Cabinet of the Royal Library of Belgium / KULeuven). Nineteen of these coins were found clustered together and represent billon coins from the second half of the 3rd century (Coin hoard

<sup>57</sup> This coin hoard was not yet known at the time of the publication of the pottery assemblage in Vanhoutte *et al.* 2009c. This hoard was unrecognisably corroded and only came to light after a Xray-analysis of metal finds, which could only take place after the publication date of the JRPS article.

<sup>58</sup> In Vanhoutte *et al.* 2009c only a selection of the forms and types could be illustrated.

5, see Appendix 9). Fifteen of them could be identified as *antoniniani* or copies from Gallienus (AD 260-268), Postumus (AD 260-268) or Claudius (AD 268-270). Four coins are distinctive in thickness, metal composition and size (diameter of c. 22 mm); they are probably very corroded, older *antoniniani* (AD 215-260). The nineteen coins possibly represent a small hoard or purse content dated at least after AD 260 or 268. Another ten coins were recovered from these waste fillings. An *as* or *dupondius* was possibly made at an unofficial workshop under Postumus (AD 260-269) (COIN0085). Two coins represent *antoniniani* or copies, four are certainly copies; they can all be generally dated to the last quarter of the 3rd century. Another three copies can be attributed to Tetricus I (one item) and Tetricus II (two coins); they date the final filling-in of the well with samian fragments and other waste with certainty after AD 274.

The samian assemblage of this context consists of 65 fragments or 26 MNI (Table 36; Plate CXXXI-CXXXII). The large size of many of the fragments implies that most of the vessels were thrown in the pit not long after they were out of use. The fact that the vessels are all of Trier or Rheinzabern fabric, next to some burnt individuals, is very significant and representative for fort level 4. Trier and Rheinzabern are equally shared: Trier accounts for 29 fragments for ten MNI, Rheinzabern for 27 fragments for nine MNI. Both productions represent the common forms and types of fort level 4.

OS 22926	n	n%	MNI	MNI%
<b>TRI SA</b>	29	44,6	11	42,3
<b>RHZ SA</b>	27	41,5	9	34,6
<b>burnt</b>	9	13,8	6	23,1
<b>TOTAL</b>	<b>65</b>	100	<b>26</b>	100

Table 36: The samian fabrics represented in context OS 22926 – waste fillings I and II, in sherd count and MNI.

In the Trier fabric at least two Drag. 37 individuals were counted (Plate CXXXI: 1-2); however, no identifiable decoration has survived. The typical later 3rd-century, thick, square-shaped Drag. 37 base (3) bears the graffito MESSIE or MESSIC (see Section 7 of this Appendix). The Trier spectrum furthermore consists of one beaker Drag. 54, two Drag. 31 dishes (4-5), three Drag. 36 dishes (6-8) and two Drag. 45 mortaria. One dish base, possibly from a Drag. 36, bears a *Strich* stamp (10). Two name stamps can also be attributed to Trier potters, but they remain unidentified (9 and 11).

The Rheinzabern fabric is represented by at least three Drag. 37 bowls (Plate CXXXII: 12-16), one beaker Lud. VMg (17), one Drag. 33 cup (18), two Drag. 18/31 dishes (19-20), one Drag. 36 dish (21) and at least one Drag. 45 mortarium (26, 27). A base fragment (not counted as MNI) belonged to a Drag. 31R or 32R (24). The Drag. 33 cup is characterised by a large diameter and very oblique walls (18). Only two of the Drag. 37 decorations can be attributed to a specific Rheinzabern potter. While the bowl made by Arvernicus-Lutaeus (AD 160-185/190) (14) must certainly be considered as a residual find, the bowl in the style of Iulius II-Iulianus I (13) (AD 220-255) could still have been in use in the late 3rd century. The heavy, thick and rather square Drag. 37 base (16) is a typical characteristic for after c. AD 230 (Bird 1993, 4). Two base fragments bear a name stamp. An abraded, small stamp fragment (22) can possibly be identified as Cintugnatus ii, active in the period AD 140-180, clearly a residual fragment. The dish stamped by Victorinus ii, active in the period AD 210-255, may well have been a vessel in use at fort level 4.

The burnt individuals, possibly all East-Gaulish products, complement the spectrum with two Drag. 33 cups (28-29), two Drag. 31 dishes, one Drag. 36 dish (30) and one Drag. 43 mortarium.

The coin evidence gives evidence that the deposition of this samian assemblage took place at least after AD 274. The spectrum the samian assemblage of the filling-in of well OS 22926 represents, does not differ from that of the previous context OS 7949 dated to the early phase of this fort level. Moreover, it is not significantly different from the contexts of fort level 3. This emphasises that narrow dating based on samian contexts is difficult, and perhaps impossible, for the 3rd century. It also points to the issue of the life-span of samian wares, a phenomenon already demonstrated by Willis in his study on the nature of the incidence of samian at British sites. Samian vessels were likely looked after and possibly often curated (Willis 2004, Chapter 5.8). The coins in the Oudenburg

context in question give a *tpq* for the moment in time when the samian of this context was discarded; however, at that time, the vessels already had a 'life of use' behind them.

#### 11.5.2.4. Fire layer OS 7957/7971

Although a fire layer cannot be considered as a closed context, its samian assemblage was selected as this layer could clearly be defined in space and since its content represents the end of fort level 4. However, due to the character of the context, more residual items are to be expected.

The fire layer also yielded 24 coins. Except for one *sestertius* dated to the 2nd-3rd centuries and nine undetermined coins (3rd-4th centuries), all other fourteen pieces were identified as *antoniniani* with radiate crowns or radiate copies, most of them datable from AD 275 onwards, yielding a *tpq* for the fire.

OS 7959/7971	n	n%	MNI	MNI%
<b>LEZ SA</b>	7	6,1	3	7,5
<b>ARG SA</b>	3	2,6	2	5,0
<b>TRI SA</b>	15	13,2	6	15,0
<b>RHZ SA</b>	32	28,1	13	32,5
<b>EG SA</b>	3	2,6	0	0,0
<b>NOG SA</b>	1	0,9	1	2,5
<b>burnt</b>	53	46,5	15	37,5
<b>TOTAL</b>	<b>114</b>	<b>100</b>	<b>40</b>	<b>100</b>

Table 37: The samian fabrics represented in context OS 7957/7971, in sherd count and MNI.

The samian assemblage consists of a total of 114 fragments, representing 40 MNI (Table 37; Plate CXXXIII-CXXXIV). As can be expected, a large percentage of the samian is burnt (46.5% of the total sherd count; 37.5% of the total MNI), which makes it impossible to draw conclusions from the fabric distribution. Within the non-burnt assemblage, Rheinzabern prevails with thirteen MNI (or 32.5% of the total MNI).

The Lezoux and Argonne fragments in the assemblage most likely represent residual items. In the Lezoux fabric three dishes occur: a Drag. 18/31, a Drag. 31 (Plate CXXXIII: 1) and a Drag. 42 variant (2). The Argonne fabric is represented by a base fragment of a Drag. 30 decorated bowl (3) and fragments of one or two beakers, of which a complete base intentionally chipped off.

The Trier assemblage (fifteen fragments, six MNI) consists of at least two Drag. 37 decorated bowls (4-6), two Drag. 33 cups, one Drag. 31 dish (7) and one Drag. 45 mortarium (8). The decorations present on the Drag. 37 bowls refer to Afer (4), active in the period AD 190-240, and the Censor-Dexter group (5), generally dated to AD 180-240. The very high, flaring rim of the Afer bowl, a late characteristic (see before), assigns this bowl to the latest phase of this potters' production. The Drag. 33 cups are represented by the base of a large example and a complete base which was intentionally chipped off.

The Rheinzabern spectrum is more divers. At least two Drag. 37 bowls can be counted, with again a late, very high, flaring rim (9). One of the bowls can be attributed to the Iulius II-Iulianus I style (10); for the other decoration (11) several contemporaneous potters can be considered. The base of a beaker of the Lud. V series bears a graffito with the name VIRNATTA (12). The barbotine bowl Lud. SMa (13) clearly is a late product. The Rheinzabern assemblage furthermore consists of the complete base of a large Drag. 33, again intentionally chipped off (14), one Drag. 18/31 dish, two Drag. 31 dishes (15 and 16), two Drag. 36 dishes (17 and 18), one collared bowl, one Drag. 43 and one Drag. 45 mortarium. At least one of the Drag. 31 dishes was rouletted (Plate CXXXIV: 20). A small, completely burnt base fragment reveals the stamp of Flavianus ii (19), working at Rheinzabern in the period AD 160-260.

The burnt fragments of this context complement the assemblage with one thick-walled beaker or vase with incised leaf decoration (21), two complete, intentionally chipped off, Drag. 33 cup bases

without stamp, one Drag. 40 cup (22), five Drag. 36 dishes (three illustrated: 23-25), one Lud. T dish and three collared bowls of which one Drag. 38 (26). The large beaker or vase and the Lud. T dish certainly are East-Gaulish products. Only one North-Gaulish product was found in this context, a small, thin-walled example of a Chenet 328-330.

While this context is most likely somewhat 'contaminated' and the burnt portion troubles the picture of the fabric distribution, this assemblage still represents the typical later 3rd-century spectrum but lacks the very late Trier products. The high flaring rims of the Drag. 37 bowls, the barbotine-decorated bowl Lud. SMA, the thick-walled beaker or vase with incised decoration and the absence of stamps on the Drag. 33 cups are all characteristic elements for the late East-Gaulish potteries. Striking is the presence of no less than five complete Drag. 33 cup bases intentionally chipped off to obtain a disc-like item, possibly to use as lid or as large counter?

### *11.5.3. Chronological conclusions for fort level 4 based on the samian*

Based on the stratified evidence, the dendrochronological data and mainly the coin evidence, the four selected contexts represent at least two phases within fort level 4. The levelling of pit OS 7949 for the installation of new hearths places this context in an early phase of fort period 4. The large waste-pit OS 4980 yielded a coin hoard with a *tpq* date of AD 267. The waste fillings of well OS 22926 – the structure itself dendrochronologically dated after at least AD 260 – can be situated after at least AD 275 based on the presence of Tetrici radiate copies. The waste had already been thrown in the well OS 22926 to level it up before a fire raged over and burnt the area.

The samian assemblages retrieved from these contexts, showing in general the same fabrics and types, do not reflect this succession; even more, they appear to date much earlier than the external chronological elements indicate. All four contexts display significant parallels to the assemblages of the Trier Massenfund (c. AD 240-260) (Huld-Zetsche 1971), the Louis-Lintz-Strasse site, dated by Loeschcke (1923, Taf. 11) c. AD 259-260 but revised and put somewhat later by Gard c. AD 275 (Gard cited by Huld-Zetsche 1971, 23), and of the Shadwell watch-tower site in London (c. AD 260) (Bird 2002). The absence of the late Trier fabric and typical forms dominating the 'post-Niederbieber-horizon' (AD 260-300) such as the NB 6, 18, and 19 (Reuter 2005, 231) suggest that a date after AD 260 would be too late for the samian assemblages at fort level 4 and rather point to a date c. AD 250-260. This conclusion can be drawn from the 'classic' samian wares. However, the clear presence of North-Gaulish samian rather refers to the late 3rd century.

With the coin evidence pointing to an end date at least after AD 276 (based on the Probus coins, but possibly much later since the Tetrici copies occurred at least until c. AD 300), it is clear that the 'classic' samian of this fort level does not capture this late date range and does not represent the very late 3rd-century repertoire. This can only imply that the samian supply to the Oudenburg fort most likely had ceased at some point in the 260's. It also points to the long life-span the samian vessels had, or rather, were supposed to have since apparently no new samian came in. Very indicative in this respect is the presence of an almost intact Central-Gaulish Drag. 38 collared bowl in the large waste-pit OS 4980 (Plate CXXVI: 1; Fig. 35). The almost complete vessel shows intense traces of use and the cut-marks and the eroded slip in the interior indicates that this bowl was probably in use for a long time before its deposition. The lack of a bead-rim could be an indication for a 3rd-century date (Bird 1993, 10). With an assumed end date for the Lezoux production around AD 240, this bowl was at least 30 years old – but probably some decades older – at the time of its deposition.





Fig 35: The complete Lezoux Drag. 38 bowl recovered from the large waste-pit OS 4980 of the fort period 4 of the late 3rd century AD.

## 11.6. *The samian wares of fort level 5*

### 11.6.1. *The samian assemblage of fort level 5 in general*

The samian assemblage recovered from features which are attributed to fort level 5, based on the stratified evidence, is characterised by the late Roman repertoire represented by the late Argonne and the North-Gaulish ware. When the MNI is considered for fort level 5, both regions appear to have been evenly important for the supply of late 'samian' to the fort. Each production is represented by 61 MNI. Apparently, the demand was focused, as they were responsible for different products (Table 38). The late Argonne spectrum at fort level 5 is dominated by decorated bowls (50 out of 61 MNI), almost completely taken in by the Chenet 320 type (49 MNI). Only one Chenet 318 was recovered from fort level 5 (and even from the entire site)<sup>59</sup>. The mortarium Chenet 328-330 is only represented twice in the Argonne fabric. All other late Argonne types yielded only one MNI: the decorated bowl Chenet ?318, the beakers Chenet 333 and 335, the cup Chenet 319, the dishes Chenet 304 and Chenet 306?, the collared bowls type Alzey 5, Chenet 324g, Mareuil 326 and the small collared bowl Brulet 424?.

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<sup>59</sup> A Chenet 317 individual should be added here, but was found at fort level 4, clearly an intrusive find.

<b>ARG SA FL5</b>		
<i>vessel type</i>	<i>form</i>	<i>MNI</i>
Chenet 320	decorated bowl	49
Chenet 318	decorated bowl	1
Chenet 333	beaker	1
Chenet 335	beaker	1
Chenet 319	cup	1
Chenet 304	dish	1
Chenet 306?	dish	1
Alzei 5	collared bowl	1
Brulet 424?	collared bowl	1
Mareuil 326	collared bowl	1
Chenet 324g	collared bowl	1
Chenet 328-330	mortarium	2
<b>TOTAL ARG SA</b>		<b>61</b>

<b>NOG SA FL5</b>		
<i>vessel type</i>	<i>form</i>	<i>MNI</i>
Chenet 320	decorated bowl	3
imitation Drag. 37R	decorated bowl	1
Chenet 326	collared bowl	1
undet.	collared bowl	1
Chenet 328-330	mortarium	50
Chenet 330	mortarium	5
<b>TOTAL NOG SA</b>		<b>61</b>

Table 38: The late Argonne and North-Gaulish vessels from fort level 5 at the south-west corner site. Attested vessels and forms based on MNI.

In contrast, the North-Gaulish potteries were very popular for their mortaria. No less than 55 MNI were counted of type Chenet 328-330 of which five MNI can be more specifically assigned to type Chenet 330. Within the late Roman North-Gaulish repertoire, apart from one collared bowl Chenet 326 and one of unidentified type, only three Chenet 320 decorated bowls are counted. The latter is in strong contrast with the significant amount of Chenet 320's in the Argonne fabric. With 50 decorated bowls in Argonne ware versus four in North-Gaulish ware and 55 mortaria in North-Gaulish fabric versus only two in Argonne fabric, the image is very convincing. The late Argonne and the North-Gaulish potteries were clearly specialising their productions during the 4th century and were supplying to the Oudenburg fort on specific demands.

Within the burnt items, two more mortaria Chenet 328-330, one Chenet 320 bowl and one dish Chenet 304 can be added. A specific item is a burnt collared bowl Trier I, 8b, a variant of the Chenet 325, the only recorded individual of this type in the assemblage.

The 49 roller stamps recovered from fort level 5 cover a date range between AD 325 and 450, a similar image as the one resulting from the totality of the roller stamps of the site (Table 39; Fig. 36). Twenty-four of these roller stamps belong to the double well OS 2562; seven were recovered from the construction pit and the primary infill of the large basin OS 4923. The road level to the south of the bath house yielded a UC 117 (AD 340-380/390), a UC 200 (IV b-c), a NS 3156 (IV b-c (?)) and a NS 3223 (IV b-c).



FORT LEVEL 5		
roller stamp type	n	dating proposals
UC 24	1	410-450
UC 40	1	390-430
UC 45	2	390-430
UC 62=285	1	IV d - V a (?)
UC 64	4	IV d - V a (?)
UC 94	1	IV d - V a
UC 95	2	IV d - V a
UC 114=340	1	390/400-420/430
UC 117	4	340-380/390
UC 118	1	IV d
UC 132=264	1	IV b-c
UC 159	1	IV b - IV d
UC 196	1	IV b-c
UC 200	1	IV b-c
UC 299	2	IV b - IV c
UC 308	2	IV B
UC 324	1	IV d - (V a ?)
NS 1055	1	360-390/400
NS 1200	1	V A
NS 1227	2	IV d - V a
NS 2006	1	IV b
NS 3091	1	IV b - IV d
NS 3137	1	IV b
NS 3149	1	IV b-c
NS 3156	1	IV b-c (?)
NS 3223	1	IV b-c
NS 3224	1	IV b-c
NS 3228	1	IV B
NS 3230	1	IVB - Va (?)
NS 3233	1	IV b-c (?)
NS 30 008	2	
unclassifiable	6	
<b>TOTAL</b>	<b>49</b>	

LEVEL '5+POST'		
roller stamp type	n	dating proposals
UC 6	2	IV b-c
UC 26	1	410-450
UC 45	1	390-430
UC 62=285	1	IV d - V a (?)
UC 64	1	IV d - V a (?)
UC 95	1	IV d - V a
UC 107	1	IV d - V a
UC 108	1	IV B
UC 117	1	340-380/390
UC 123 var.	1	[IVd-Va]
UC 158	1	IV b - IV d
UC 165	1	IV d - V a
UC 199	1	390-425
UC 207	1	IV b-c
UC 270	1	IV b-c
UC 288	1	IV b-c
UC 306	1	IV b-c
UC 308	1	IV B
UC 319	3	IV d - V a
UC 129=325	2	350-400/410
UC 111=333	1	IV d - V a
NS 1025	1	IV c
NS 1281	1	IV b-c
NS 1398	1	IV b-c
NS 1470	1	IV b-c
NS 2006	1	IV b
NS 3137	1	IV b
NS 3161	1	IV b-c
NS 3232	1	IV b-c (?)
NS 30 010	1	
unclassifiable	4	
<b>TOTAL</b>	<b>38</b>	

Table 39: The represented roller stamps in fort level 5 and in the transition level 5+post.

The remaining 444 samian individuals found at this level all represent mid-Roman fabrics and types, and are therefore all to be considered as residual, dug-up material of the earlier levels. With 122 late Roman versus 444 mid-Roman individuals or a ratio of c. 1 to 3.6, the high degree of residuality is very visible at this level. In contrast to earlier levels where the same mid-Roman fabrics and types are common, the contrast between the mid- and late Roman types at fort level 5 can be measured clearly.

chronological range of the identified roller stamps recovered at the south-west corner site (n: 105 unique stamps)

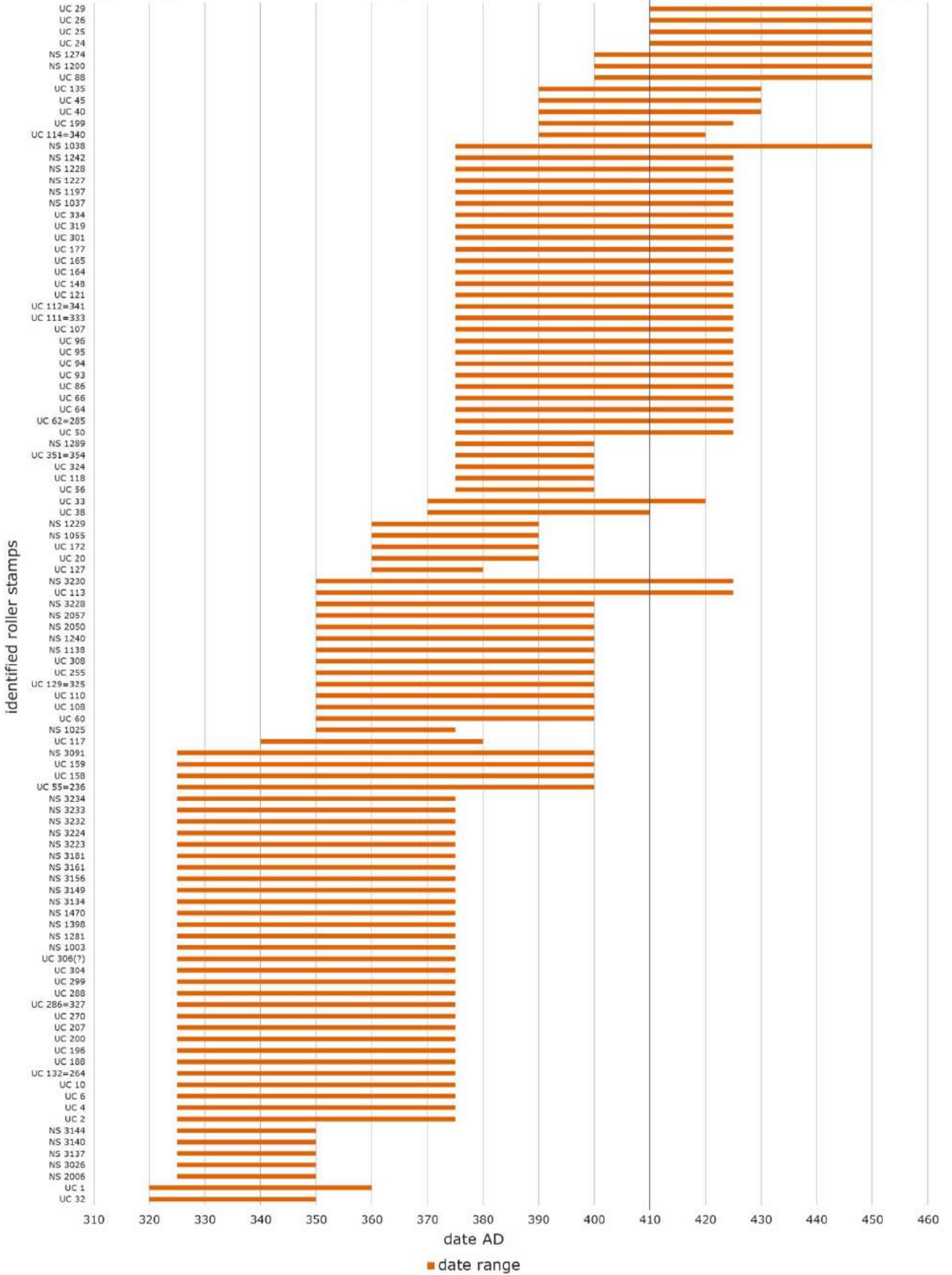


Fig 36: Chronological range of all identified late Roman roller stamps versus the afore assumed AD 410 end date of the Oudenburg fort.

### 11.6.2. Closed contexts of fort level 5

The early and the late phase of fort level 5 are both marked by a dendrochronological date. Both (felling) dates were retrieved from wood from different parts of the double well OS 2562: AD 319-329 and AD 379-380 (see Appendix 8, Section 2). While considerably more late Roman coins were recovered from the post-Roman levels, only four late Roman issues could be identified at fort level 5: a *nummus* of Licinius (AD 310-315) (COIN0240), a *nummus* of Constantinus I (c. AD 320) (COIN1114), a *Victoriae Laetae Princ Per* type (AD 320-325) (COIN0335) and a *Securitas Reipublicae* AES-3, dated to AD 364-375 (COIN0074).

The residuality factor increases at this fort level 5, as already mentioned, and can clearly be recorded with late Roman ceramics easily recognisable from mid-Roman fabrics and types. Only two quantitatively and qualitatively valuable contexts can be selected containing a significant portion of late Roman samian (for their location: see Plate XXXVI; Addendum 10).

From the context of the large water-basin OS 4923, only the primary infill of the basin after its last use is considered here, as its construction pit appeared to contain a considerable amount of dug-up material from all levels. Only one 4th-century coin was found in this context, more specifically in the construction pit: the *Victoriae Laetae Princ Per* issue (AD 320-325). Nevertheless, it is important to draw attention to the three Chenet 320 bowl fragments retrieved from this construction pit. Two of the roller stamps can be identified as UC 64 (IVd-Va(?)), one as UC 94 (IVd-Va). They date the installation of the basin at least after AD 375.

From the context of the double well OS 2562 several levels are selected (see for the position of these levels: Addendum 10). The samian from structure level 6 contains the fragments which were found in the shaft in-between both frameworks; they can be related to the installation of the inner framework, dendrochronologically dated after AD 379-380. The samian from structure level 0+1 represents the fragments thrown into the inner well right after its last use; they can be related to the end phase of fort level 5 and simultaneously probably the final end of the fort occupation at Oudenburg. Structure level 2 is the primary infill of waste material; structure levels 3 and 4 are successive infills, with the latter being the final waste infill of the pit. The double well yielded sixteen coins, however only one can be dated to the late Roman period with certainty. This AES-3 *Securitas Reipublicae* (AD 364-375) (COIN0074) was found in the waste fillings after abandonment of the structure (structure level 4).

#### 11.6.2.1. Basin OS 4923

The samian from the primary infill of basin OS 4923 accounts for 62 fragments, representing 27 MNI (Table 40; Plate CXXXV). Only six MNI (or thirteen fragments) can be assigned to late Roman fabrics and/or types: one North-Gaulish Chenet 328-330 mortarium and at least five late Argonne Chenet 320 decorated bowls (Plate CXXXV: 2-7). All other fabrics and types refer to the 3rd century or earlier and are to be considered as residual, dug-up individuals: two from Lezoux, one from Les Martres-de-Veyre (1), five mid-Roman individuals from the Argonne (three illustrated: 8-10), seven individuals from Trier (e.g. 11) and four from Rheinzabern (e.g. 12-13). Also the two burnt individuals represent mid-Roman types (e.g. 14). With 49 mid-Roman versus thirteen late Roman fragments, this context is above all an illustration of the large residual component in the late Roman contexts. Of the four roller stamps, three are identifiable of which two are datable, both in the period c. AD 325-375 (Table 41). However, from the construction pit of the basin three more roller stamps could be retrieved, twice a UC 94, once a UC 64. They date the installation of the structure in the last quarter of the 4th or first quarter of the 5th century. Simultaneously, they point to the difficulty to obtain narrow dates from samian assemblages as the samian from the primary infill did not result in such a late date.

OS 4923	n	n%	MNI	MNI%
<b>LEZ SA</b>	3	4,8	2	7,4
<b>LMV SA</b>	1	1,6	1	3,7
<b>ARG SA (mid)</b>	11	17,7	5	18,5
<b>TRI SA</b>	15	24,2	7	25,9
<b>RHZ SA</b>	14	22,6	4	14,8
<b>NOG SA</b>	4	6,5	1	3,7
<b>ARG SA (late)</b>	9	14,5	5	18,5
<b>burnt</b>	5	8,1	2	7,4
<b>TOTAL</b>	<b>62</b>	<b>100</b>	<b>27</b>	<b>100</b>

Table 40: The samian fabrics represented in context OS 4923 primary infill, in sherd count and MNI.

OS 4923 level	MNI	roller stamp	dating proposal	ill.
<i>construction pit</i>	1	<b>UC_94</b>	IV d - V a	
<i>construction pit</i>	2	<b>UC_64</b>	IV d - V a (?)	
<i>primary infill</i>	1	<b>NS_3149</b>	IV b-c	2
<i>primary infill</i>	1	<b>NS_3233</b>	IV b-c (?)	4
<i>primary infill</i>	1	<b>NS_30 008 **</b>		3
<i>primary infill</i>	1	<b>undet.</b>		5

Table 41: The presence of roller stamps of Chenet 320 bowls in basin OS 4923 of fort level 5, with reference to their illustration on Plate CXXXV. \*\*: joins with fragment from the final infill of well OS 2562 (see Table 42).

#### 11.6.2.2. Well OS 2562

The previously mentioned different levels of the double well OS 2562 yielded in total 129 samian fragments, accounting for 58 MNI (Plate CXXXVI-CXXXVII).

From structure level 6, 31 samian fragments were recovered for 23 MNI (Plate CXXXVI: 1-15). The late Roman spectrum, all in Argonne fabric, represents at least five Chenet 320 bowls (6-10), two Chenet 304 dishes (11-12), and one possible Chenet 306 dish. Four of the roller-stamped decorations can be identified: UC-324 (6), NS 30 008 (7), UC-299 (8) and UC 114=340 (9); no. 10 remains unidentified. UC 299 can be dated to IVb-c; UC 324 probably to IVd-Va. UC 114=340 yields a very close date between AD 390/400 and 420/430. All other individuals from this level represent mid-Roman fabrics and types: one from La Graufesenque (2), one from Lezoux, one South- or Central-Gaulish individual (1), four mid-Roman Argonne individuals (3, 13-15), two from Trier, four from Rheinzabern (*e.g.* 4) and two burnt individuals (*e.g.* 5).

Structure level 0+1, the first infill right after the last use of the structure as well, only yielded nine samian fragments, accounting for four MNI (Plate CXXXVI: 16-21). Only one rim sherd of a Chenet 320 bowl, however without the decoration preserved (18), and the base of a Chenet 304 dish (19) can be attributed to the late Roman period. Remarkable is the amount of mid-Roman residual material: a dish base stamped by Libonus of Lavoye (16), a rim fragment of a Drag. 43 mortarium (17) and two more Argonne dish or bowl base fragments (20-21).

A similar picture is shown by structure level 2, with nine fragments, accounting for six MNI (Plate CXXXVI: 22-26). Only one fragment of a Chenet 320 bowl (25) and one undetermined Chenet bowl base (26) can be identified as late Roman. The Chenet 320 roller stamp (25) can be identified as NS 3230, dated to IVB-Va(?). All other fragments represent the mid-Roman spectrum (*e.g.* 7-9). Structure level 3, with five fragments (two MNI) (Plate CXXXVI: 27-28), only yielded one late Roman individual: a base of a Chenet 328-330 in North-Gaulish fabric (28).

Structure level 4, to which several layers of the last waste infill into the inner framework are defined, yielded 106 samian fragments, accounting for 45 MNI (Plate CXXXVII). Within this assemblage, only 37 fragments for 25 MNI can be attributed to the late Roman period. The Argonne fabric represents 30 fragments or at least twenty-one Chenet 320 bowls (Plate CXXXVII: 18-42), one Chenet 318 bowl (43), one Chenet 333 beaker (44), one Chenet 324 collared bowl and one very large Chenet 328-331 mortarium. Nineteen of the twenty-one Chenet 320 roller stamps can be

identified. They are listed in Table 42. The latest date they represent, is AD 390-430. The beaker Chenet 333 can be dated to the second half of the 4th century – early 5th century (Brulet 1994, Fig. 84). The Chenet 328-331 mortarium (not illustrated) displays an interesting aspect: after the footing was broken off, the break was flattened and the vessel remained in use. It refers to the long life-span envisaged for this kind of vessel and the value a mortarium had for its owner. The North-Gaulish fabric is only represented by three fragments, accounting for one MNI, a Chenet 328-330 mortarium. The remaining 71 fragments can all be related to mid-Roman fabrics and types. The represented individuals originate from Lezoux (1 MNI), Central-Gaul (1 MNI), the Argonne (3 MNI: Plate CXXXVII, 1), Trier (at least 4 MNI: Plate CXXXVII, 3, 5-8), Rheinzabern (8 MNI: Plate CXXXVII, 9-16); two burnt individuals complete this list (Plate CXXXVII: 2, 4). In combination with the late Argonne ware, these can all be considered as residual, dug-up pieces. The very oblique rim fragment from the Argonne (Plate CXXXVII: 44) remains unidentified and cannot be attributed to either the mid-Roman or late Roman production.

OS 2562 level	MNI	roller stamp	dating proposal	ill.
structure level 6	1	<b>UC 114=340 *</b>	390/400-420/430	9
structure level 6	1	<b>UC 299</b>	IV b - IV c	8
structure level 6	1	undet.		10
structure level 6	1	<b>UC 324</b>	IV d - (V a ?)	6
structure level 6 bottom	1	<b>NS 30 008</b>		7
structure level 2	1	<b>NS 3230</b>	IVB - Va (?)	25
structure level 4	1	<b>UC 40</b>	390-430	26
structure level 4	1	<b>UC 45</b>	390-430	17
structure level 4	1	<b>UC 62=285</b>	IV d - V a (?)	29
structure level 4	2	<b>UC 64</b>	IV d - V a (?)	27, 30
structure level 4	1	<b>UC 114=340</b>	390/400-420/430	20
structure level 4	3	<b>UC 117</b>	340-380/390	24, 25, 32
structure level 4	1	<b>UC 118</b>	IV d	23
structure level 4	1	<b>UC 159</b>	IV b-d	not ill.
structure level 4	1	<b>UC 196</b>	IV b-c	31
structure level 4	1	<b>UC 299</b>	IV b - IV c	35
structure level 4	1	<b>UC 308</b>	IV B	33
structure level 4	2	<b>NS 1227</b>	IV d - V a	21, 28
structure level 4	1	<b>NS 3091</b>	IV b - IV d	18
structure level 4	1	<b>NS 3228</b>	IV B	22
structure level 4	1	<b>NS 30 008 **</b>		19
structure level 4	1	undet.		34
structure level 4	1	undet.		not ill.

Table 42: The presence of roller stamps of Chenet 320 bowls in double well OS 2562 of fort level 5, with reference to their illustration on Plate CXXXVI-CXXXVII. \*: joins with fragment recovered from structure level 4; \*\*: joins with fragment from the primary infill of basin OS 4923 (see Table 41).

### 11.6.3. Chronological conclusions for fort level 5 based on the samian

The chronological framework offered by the dendrochronological dates for fort level 5 (AD 319-329 and AD 379/380) covers all late Roman samian found on the site. The conclusions that could be drawn from the late Roman samian assemblage as a whole are therefore without any doubt representative for this fort level. The samian assemblages of the two selected key contexts only slightly confirm this picture and cannot be considered as representative for the total spectrum of fort level 5. Based on the samian, and even when considering all the late Roman pottery, many features and structures of fort level 5 can hardly be dated to a narrow range. The stratified evidence appeared to be the only reliable direct information to subdivide most features and structures, except for basin OS 4923 and double well OS 2562, into a phasing at this level. It also emphasises, together with the large amount of roller-stamped Chenet 320 bowls in the covering post-Roman levels, that this latest fort level was thoroughly disturbed after the abandonment of the fort.



### 11.7. Chronological conclusions from the samian assemblage

The general picture represented by the combined dating data from the mid-Roman stamped vessels and decorated wares from the samian assemblage of the south-west corner site, assumes a fort occupation from the second half of the 2nd century until c. AD 265 (Fig. 37). The first peak in the period AD 175-185 may indicate the start of the first occupation. Whereas a strong samian supply can be attested during the 3rd century, a decline can be observed in the period AD 205-215, both in the stamps and the decorations. This could confirm an interruption (or a drastic decline) in the occupation during the early 3rd century as is shown by the contextual study of closed assemblages. Obviously, the end date of c. AD 260 or somewhat later for the samian supply cannot be considered as end date for the fort occupation; it only represents the cessation of the distribution from the Trier and Rheinzabern potteries.

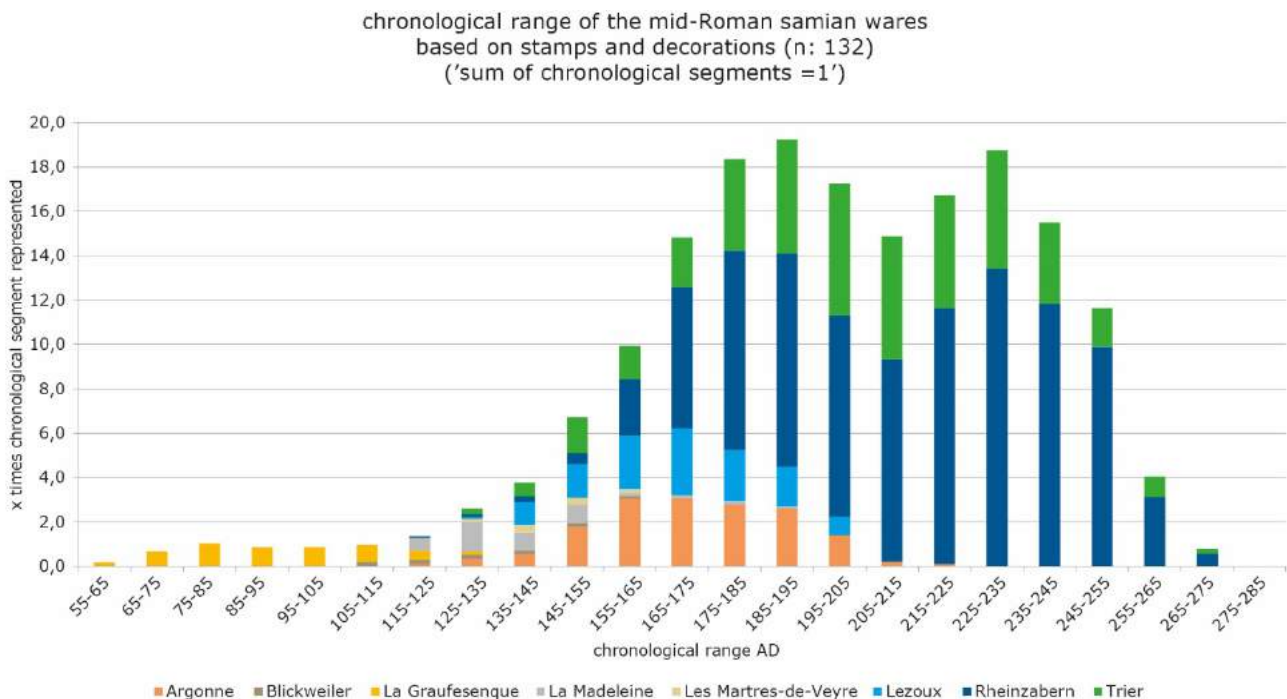


Fig 37: Chronological range concluded from the mid-Roman samian stamps and decorations, with the sum of the chronological segments (10 years) seen as 1. This graph combines the data from Fig. 27 and Fig. 30.

The contextual approach of the samian research, considering selected samian key context assemblages for every fort level, yields further chronological information and narrows the dating ranges. At the same time, it shows the dating restrictions of samian for the late 2nd and 3rd centuries and the need to integrate the chronological evidence from as much as possible other pottery (and other find) categories in order to narrow the date ranges. Based on the samian, fort level 1 can be dated c. AD 175-200. The samian of fort level 2 covers a date range between AD 220 and c. 240/250, while the fort level 3 assemblages point to the middle of the 3rd century. The samian present in the key contexts of fort level 4 can all be dated to c. AD 250-260; however, the coin evidence and other pottery categories clearly point to a continuing occupation until at least the end of the 3rd century. Even more, while the samian is dated c. AD 250-260, it occurs together with later wares in the same contexts (cf. e.g. the colour-coated and black-slipped wares) – exemplified by key context OS 4980 –, pointing to the long life-span the samian vessels must have had. The contextual data indicate that a stop in the supply of samian to the Oudenburg fort can be assumed in the 260s. Only three potters present in the samian assemblage were still active until AD 270/275, but obviously, it cannot be deduced whether their products represent the end phase of their production.

The late Roman samian was entirely supplied by the Argonne and the North-Gaulish potteries, with the Argonne almost solely responsible for the decorated Chenet 320 bowls and with the North-

Gaulish workshops mainly supplying mortaria. Although the key contexts are limited, the presence of identifiable roller stamps in these contexts gives evidence of a date range from the second quarter of the 4th until the first decades of the 5th century (Fig. 38).

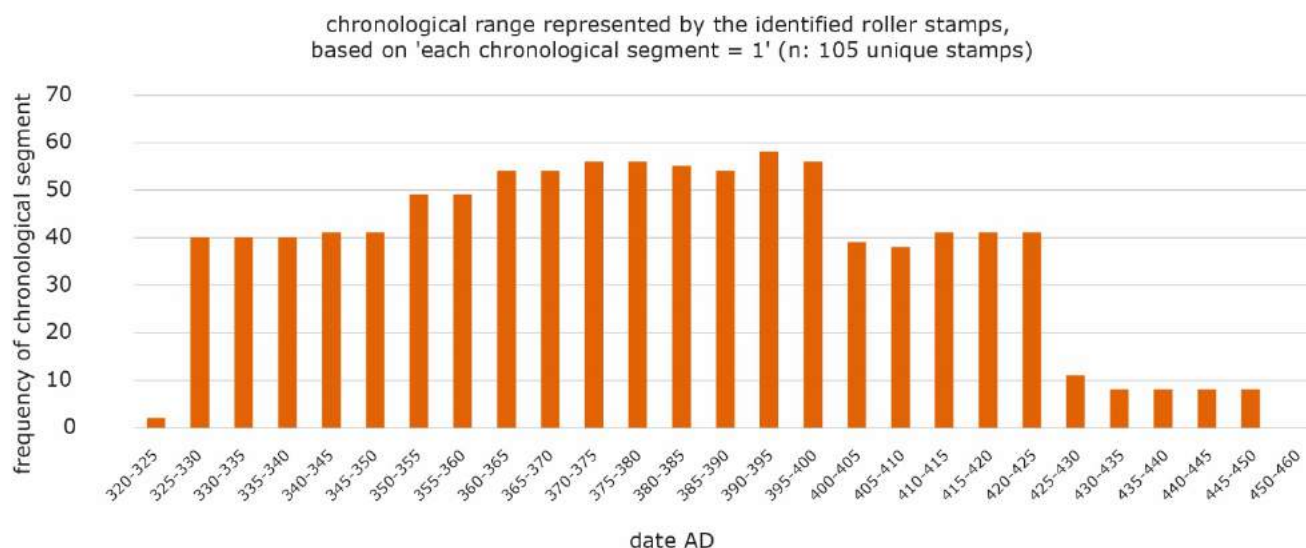


Fig 38: Chronological range represented by the identified late Roman roller stamps. Each chronological segment (10 years) is counted as 1.

## 12. Reference material: samian at the other Shore forts in the Channel region

The scarcity of available data from the other military shore sites covering the occupation period of the Oudenburg fort accentuates the significance of the present samian study to uncover trade networks in the Channel region. The data available for the Aardenburg fort are integrated in Chapter V.3. Looking into the stamp presence at the other Channel forts through the *Names on Terra Sigillata* research database<sup>60</sup> is indicative for supplies to some level although this should not be overestimated. Readable stamps represent only a small percentage of samian assemblages and only a proportion of forms were stamped. Hence, the chances of recovering a stamp of any particular potter or matches of potters and dies is low unless huge assemblages are considered. It is therefore noteworthy that several identical stamps at the British forts like at Oudenburg have been found.

From the *Classis Britannica* fort at Boulogne-sur-Mer no studied context assemblages validate a comparison with the samian assemblages of the Oudenburg fort as the Boulogne contexts date too early or cover a too wide a time-span<sup>61</sup>. Combing through the more than 260 samian stamps found at Boulogne (recorded in the RGZM samian database) only results in three potters from Lezoux also distributing stamped vessels to Oudenburg: the overall-present Albucius ii, Cintusmus I and Magio I; Cinnamus ii distributed decorated bowls to Oudenburg.

<sup>60</sup> *Corpus Vasorum Arretinorum / Names on Terra Sigillata*, the samian research database of the Römisch-Germanisches Zentralmuseum Mainz, created by G. Dannell and A. Mees: <http://www.rqzm.de/samian/home/frames.htm>.

<sup>61</sup> The pottery assemblage of a waste-pit was studied by Thoen and Seillier (1978). A study by Belot and Canut (1994) of 2nd- and 3rd-century pottery assemblages did not include the samian. The pottery assemblage of a collecting sewerage, in use from the beginning of the 2nd century into the 4th century, yielded samian dated to the Flavian period and the 2nd century (Dhaeze and Seillier 2005; Dhaeze 2011). Three other contexts were studied by Dhaeze (2011): the debris fillings of a tower and related to the construction of it, located at site Rue Saint-Jean (dated first quarter 2nd century); waste fillings of a sewerage at Rue de Pressy (dated to c. AD 100 until end 3rd century); a waste-pit located in-between barracks E and H, site 'Ancien évêché' (later 2nd century; the samian of this context accounts only for 8 MNI).



From the limited data available from the forts on the British side of the Channel that were already installed in the late 2nd or during the 3rd century, some, but only some, comparisons can be made; it should be taken into account that available data are scarce.

The only large, and studied, assemblage of samian ware of a British Shore fort comes from Caister-on-Sea (1525 samian fragments) (Dickinson 1993). It shows several similarities with that from Oudenburg. Being mainly of late-Antonine and 3rd-century date, the proportion of the East-Gaulish products is remarkably high in comparison to other sites in *Britannia*, with Trier and Rheinzabern productions prevailing; however, Dickinson mentions that this picture is not differing from other Saxon Shore fort assemblages (Dickinson 1993, 154), however without yielding evidence. The form spectrum as well shows close parallels with that at the Oudenburg fort, with large quantities of mortaria, cups Drag. 33 and dishes Drag. 31(R), and the presence of the Lud. SMB and Trier Massenfund 8b. At Caister-on-Sea, the mortaria represent no less than 33.4% of the East-Gaulish individuals, while they account for 14% of the wares in Central-Gaulish fabric (weight percentages). Different figures however were obtained by Dickinson for Brancaster where 16% of the East-Gaulish vessels are mortaria and only 4.4% of the Central-Gaulish individuals (Dickinson 1993, 155)<sup>62</sup>.

The Shore fort at Reculver was installed in the late 2nd century (Philp 2005, 216) and may well have been constructed contemporaneously with the Oudenburg fort. The 2nd-century samian wares all come from Lezoux, the 3rd-century East-Gaulish products originate from Trier, Rheinzabern and Argonne (Bird in Philp 2005, 143-144)<sup>63</sup>. Only one Argonne Drag. 37 bowl was recorded, made by Tribunus who also distributed to Oudenburg. Also at Reculver, the decorated wares show a dominance of Rheinzabern over Trier; from Trier several mortaria were imported. For the Rheinzabern assemblage at Reculver, Bird however records no less than eleven decorated bowls, with at least three or four by Iulius II – Iulianus I, and single Drag. 37 bowls by Cerialis IV, Cerialis VI or Primitivus I and Atto I or Firmus II, aside from four stamped plain ware vessels, amongst which Iulianus iii who distributed decorated vessels to Oudenburg, and large beakers of Drag. 54, late versions of Lud. Sb and unstamped Drag. 33 cups (Bird in Philp 2005, 144). Overall, this samian assemblage shows striking parallels with that of the 3rd century at the Oudenburg fort.

The Saxon Shore fort at Dover was only installed by the end of the 3rd century, but the site had been previously occupied by two successive *Classis Britannica* forts of which the last one dates to the period AD 190/200 – c. 208. It is therefore not surprising that only a small amount of Rheinzabern samian was found at the site, likely for the largest part datable to the late 2nd-early 3rd century (Bird and Marsch 1981, 179)<sup>64</sup>.

The Richborough fort was constructed in the late 3rd century on the same location where before there was a bridgehead and storage depot and later a civil port and settlement that existed here from the 1st century onwards. The fort was occupied again by the military around the middle of the 3rd century. Consequently, the samian recovered during the excavations in the early 20th century, obviously covers a very wide time-span. In the listings of the samian stamps and decorations in the successive reports of Bushe-Fox (1926, 49-84; 1928, 53-92; 1932, 94-159; 1949, 160-240), the 1st- and 2nd-century samian largely outnumbers the 3rd-century fragments. Only in the fifth Richborough report an analytical study of the samian stamps found on site has been presented which reveals a dominance of 2nd-century Lezoux samian (Dickinson *et al.* 1968,

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<sup>62</sup> Of the sixteen samian stamps recorded for Brancaster in the RGZM samian database, two potters, both from Rheinzabern, also occur at Oudenburg: Crassiacus (two times attested at the Oudenburg fort, with the same die 1a) and Severianus ii (also two times attested at Oudenburg, with different dies). For Crassiacus a production in the period AD 180-220 is suggested, for Severianus ii activity in the period AD 190-240 is believed (see respectively Oudenburg stamps SS38-39 and SS63-64).

<sup>63</sup> The RGZM samian database lists several stamps found at Reculver, among which Urbanis iv of Trier who occurs also at Oudenburg (with the same die); this potter however knew a wide-spread distribution, with attested vessels at several Rhine limes forts and in *Britannia*.

<sup>64</sup> From the 90 samian stamps listed for Dover in the RGZM samian database, three potters of Antonine date also distributed stamped vessels to Oudenburg: Albusius ii and Cintusmus i from Lezoux, Amabilis ii from La Madeleine. The attested Cinnamus ii was responsible for decorated bowls at Oudenburg.

146-148)<sup>65</sup>. The Rheinzabern products only represent an '*extreme rarity*', and there is only a low quantity of East-Gaulish products in general; there are even more stamps from the Argonne and Chémery-Faulquemont potteries than from Rheinzabern<sup>66</sup>. According to Dickinson *et al.* this reflects a very limited occupation in the first half of the 3rd century (Dickinson *et al.* 1968, 148). Nevertheless, chronologically the rarity of Rheinzabern products and especially the lack of late Rheinzabern stamps at Richborough may well be in line with the picture from Oudenburg. It confirms that by the time the Richborough fort was installed – whether this was in the 260s or 270s –, the Rheinzabern export to the Channel region already had stopped.

During the investigations in the 1970s at the Lympe fort, installed in the late 3rd century and believed to have been occupied until the middle of the 4th century (Cunliffe 1980), only a very small amount of samian was found. Some 2nd-century Central-Gaulish samian, outnumbering even the East-Gaulish fragments, and one mid- or late Argonne samian dish (Bird in Cunliffe 1980, 275, 277) are residual material from the *Classis Britannica* fort.

At the Portchester fort, only a very small proportion of late Argonne ware was found, representing five decorated bowls and twenty plain vessels, of which only some fragments were recovered from a stratified context (Cunliffe 1975, 278-279; Fulford 1977, 77). The variety in the plain forms is however remarkable. Apart from the five Chenet 320 bowls, the Portchester assemblage contains the types Chenet 304, 313, 324, 326, 328 and 329. The vessels can be dated between c. AD 320 and 390 (Cunliffe 1975, 278-279). Cunliffe also pointed to the rarity of the Argonne ware in Britain and saw an explanation in the competition from the Oxfordshire and other fine ware products. Interesting is his comment that '*it is difficult to interpret its (i.e. the late Argonne ware) presence as either through trade or the casual import of belongings by individuals*' (Cunliffe 1975, 278).

From the Richborough fort, over thirty late Argonne vessels are mentioned by Fulford (1977, 76), however most of them are unpublished. Bushe-Fox records a Chenet 304 dish with roller-stamped decoration (1949, 270: 480 and Plate XCIV) and a decorated Chenet 320 bowl, found in a late 4th century deposit (Bushe-Fox 1926, 102: 95 and Plate XXVII).

Excavations at the 4th-century fort of Burgh Castle only yielded two possible late Argonne bowls (Johnson 1983, 90, 91: Fig. 38, 1-2). From Lympe, one late Argonne vessel is known (Fulford 1977, 76). The late Roman assemblages at the Reculver fort comprise some Argonne wares of late 3rd- and 4th-century date, but of only one Chenet 320 bowl the roller stamp was preserved, however unidentified (Bird in Philp 2005, 151).

With a c. AD 293 date for its installation, the Pevensey fort evidently only validates a comparison with its late Roman samian assemblage. Argonne wares are present, however in small quantities. The function of the samian repertoire was clearly taken over by the other fine wares, of British origin. These fine wares are dominated by the Oxfordshire wares (often imitating samian forms) mainly representing closed forms including beakers with open forms from the early 4th century onwards, the Pevensey wares (mainly necked and other bowls) and the New Forest beakers and bottles (Lyne 2009, 99). The late Argonne wares, represented by ten individuals, show a remarkable variety : two roller-stamped Chenet 320 bowls (respectively dated AD 320-360 and AD 390-425), two Chenet 323 bowls, one Chenet 323A bowl, one Chenet 324c bowl, one Chenet 310 bowl, one Chenet 319b bowl, one Rigoir (1968) 15A bowl '*sigillée paléochrétienne*', and one rouletted Rigoir (1968) 17 bowl (Lyne 2009, 119, 118: Fig. 32, respectively illustrated as 22, 26, 31-32, 30, 23, 24, 25, 27, 28).

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<sup>65</sup> Lezoux potters, of Antonine or late 2nd-century date, attested at Richborough and listed in the RGZM samian database, and who also distributed stamped plain wares to the Oudenburg fort, are Albusius ii, Cintusmus i (both with similar die at Oudenburg), Pugnus ii and Sabinus viii. Again, Cinnamus ii is attested, who distributed decorated wares to Oudenburg.

<sup>66</sup> Only one Rheinzabern potter occurs at both the Richborough and Oudenburg fort: Victorinus ii, active in the period AD 210-255 (NOTS, vol. 9, 237-238).

## 13. Catalogue of the samian stamps of the south-west corner site

For each stamp<sup>67</sup> the following data are listed:

*Stamp no. and reading*

*Drawing no.*

*Context in which the stamp was found*

*Fort level to which the context belongs*

*Type of vessel*

*Identified potter*

*Established dating of the potter*

### 13.1. NAME STAMPS

#### **LEZOUX**

##### SS1. **JBVCI**

C 2609 / TS 0662 – S 019

Demolition layer of furnace OS 7905 (furnace for metalworking)

4

Drag. 18/31 (TS-LX4)

Albucius (ii) of Lezoux (NOTS vol. 1, 137-144: die 6e?)

AD 145-175

##### SS2. **JONI-I**

C 3248 / TS 1472 – S 127

Layer OS 80038

5

Drag. 18/31 or 31 (TS-LX4)

?Carant- Don- of Lezoux, possibly an association of two potters (NOTS vol. 2, 234: close to die 1a (only one die known))

AD 160-200

##### SS3. **CINTVSMIM**

C 0065 / TS 0806 – S 079

Layer OS 70189

4

Drag. 18/31 (TS-LX4)

Cintusmus i of Lezoux (NOTS vol. 3, 38-43: die 2b;

Bird 1986, 188: 3.36)

AD 140-180

##### SS4. **JOM**

C 5314 / TS 3837 – S 154

Earthen rampart OS 30915

1>4

Drag. 18/31 (TS-LX4)

Magio i (Magionus?) of Lezoux (NOTS vol. 5, 199-201: die 3a)

AD 160-200

##### SS5. **PVGNI·M**

C 3109 / TS 1332 – S 041

Level OS 7909/7656

4+5

Drag. 33 (TS-LX4)

Pugnus ii of Lezoux (NOTS vol. 7, 283-285: die 2e)

AD 135-165

##### SS6. **SABINI OF**

C 1811 / TS 0142 – S 138

Level OS 70914

2+3

Drag. 33 (TS-LX4)

Sabinus viii of Lezoux (NOTS vol. 8, 33-35: die 5a)

AD 160-200

##### SS7. **JCVLNO (?)** abraded

C 2749 / TS 0817 – S 075

Pit OS 7044.IV

4

Drag. 18/31 (TS-LX4)

Reading direction uncertain; no match found

?

##### SS8. **JV[ JNI** abraded

C 1934 / TS 0172 – S 010

Level rampart I OS 30916

1

Dish? (TS-LX4)

No match found

?

<sup>67</sup> The catalogue of the samian stamps comprises the diagnostic stamps, meaning the stamps preserved well enough to lead to the identification of the stamp and/or the reading of the name of the potter, besides also stamp fragments with a readable portion of the die but so far not identifiable. The stamps are classified according to fabric/origin and furthermore in alphabetical order.

## **LA MADELEINE**

SS9. **JBIL** abraded  
C 3121 / TS 1344 – S 090  
Level OS 80918  
4+5  
Drag. 18/31  
Amabilis ii of La Madeleine (NOTS vol. 1, 161-166:  
die 7b?)  
AD 125-155

## **ARGONNE**

SS10. **GIAMILLVS** very worn and possibly not well  
stamped  
C 2457 / TS 0507 – S 082  
Level OS 80917  
4  
Drag. 31 (with graffito G11: crossed lines on  
bottom of base)  
Giamillus iii of Lavoye (NOTS vol. 4, 206: die 5a)  
AD 140-200

SS11. **LIBONI**  
OS 2562 C.005 / TS 1636 – S 042  
Primary filling of inner structure of 'double well' OS  
2562  
5  
Drag. 18/31 or 31  
Libonus of Lavoye (NOTS vol. 5, 60: die 1a)  
AD 150-200?

## **TRIER**

SS13. **APOLI**  
OS 4980 C.002 / TS 1089 – S 033  
Primary filling of large waste-pit OS 4980  
4  
Drag. 32 or 36  
Unparalleled stamp: Apolo/Apolus?  
?

SS14. **ATI[ JIDO F**  
OS 4980 C.008 / TS 1095 – S 034  
Primary filling of large waste-pit OS 4980  
4  
Dish (TRI SA B)  
Atilido of Trier (NOTS vol. 1, 294: die 1a)  
late 2nd – first half of 3rd century AD

SS15. **JLIS.F**  
C 1933 / TS 0171 – S 011  
Level rampart I OS 30916  
1  
Drag. 18/31

SS12. **TVLLVSFE**  
C 0069 / TS 0839 – S 076  
Pit OS 8924C  
4  
Drag. 33  
Tullus of Le Pont-des-Rèmes (NOTS vol. 9, 107: die  
2a; Frey 1993: Taf. XIV, 292.2)  
AD 150-180

Cerialis vii 'of East Gaul' (NOTS vol. 2, 357-358: die  
1a/1b. Hartley and Dickinson suggest Blickweiler or  
Trier as origin)  
AD 140-180?

SS16. **JIALISF ?** intradecorative stamp; abraded  
OS 4923 C.010 / TS 1764b – TS 161  
Construction pit large basin OS 4923  
5  
Drag. 37 (TRI SA A)  
Comitalis of Trier, also based on the freeze  
decoration (NOTS vol. 3, 95-102: die 5f tab?)  
AD 170-240

SS17. **D[ JSIVS**  
C 2872 / TS 0937 – S 025  
Unit VIII: level OS 8959  
4  
DishR (TRI SA A)  
Dessius of Trier (NOTS vol. 3, 269; Frey 1993, 37  
and Taf. VI: 106)

AD 200-260

**SS18. DRVCAVRSV**

C 2102 / TS 0017 – S 001

Pit OS 81905

1 or 2

Dish? (TRI SA B)

Drucaursus of Trier (NOTS vol. 3 'East Gaul', 330: die 1a but the Oudenburg die is neater)

AD 160-260

**SS19. IILIINIΛS**

C 5294 / TS 3816 – S 053

Mixed level OS 30915

1 to 4

Drag. 31 (TRI SA A)

Elenius i 'of Les Allieux', but also active at Trier (NOTS vol. 3, 347: die 5a)

AD 170-200

**SS20. IVCV[**

C 1438 / TS 1005 – S 120

Unit V: large fire layer OS 8905B

4

Drag. 32 (TRI SA A)

Iucundus v of Trier (NOTS vol. 4, 316, die 1c)

AD 160-260?

**SS21. ME[ JVSSA**

OS 4980 C.012 / TS 1099 – S 035

Primary filling of large waste-pit OS 4980

4

Lud. Th

Mercussa of Trier (identification provided by dr. B. Dickinson, but the die has no parallel; potter also unknown to dr. I. Huld-Zetsche (pers. comm.))

?

**SS22. MINVT\[**

C 2873 / TS 1007 – S 081

Layer OS 71334

4

Drag. 31 (TRI SA C)

Minutus of Trier (NOTS vol. 6, 113-115, die 3a; Frey 1993, 62 and Taf. X: 203,2)

AD 170-250? (dated by Frey 1993, 62 around the middle of the 3rd century)

**SS23. PAR[ very abraded**

OS 4923 C.056 / TS 1810 – S 128

Construction pit of large basin OS 4923

5

Dish (burnt) (with graffito G28: crossed lines on the bottom of the base)

?Parentinus of Trier (NOTS vol. 7, 9-10: die not identifiable)

AD 180-260

**SS24. JVINVSFE**

C 2156 / TS 0122 – S 003

Level OS 22935

2+3

Dish (TRI SA A)

Patruinus ii of Trier (NOTS vol. 7, 90: die 1a)

AD 200-260

**SS25. VRB[ JSFE with ligature FE**

C 2681 / TS 0748 – S 080

Unit II: construction slot OS 7994

4

Drag. 31

Urbanus of Trier (NOTS vol. 9, 120-121: die 1a; Frey 1993, Taf. XVI, 310, 1)

AD 190-240? This potter seems to have been active in both Rheinzabern and Trier workshops. Stamps of Urbanus amongst Rheinzabern samian wasters of a kiln at Rheinzabern points to an early 3rd-century activity at Rheinzabern (NOTS vol. 9, 121). The fabric of the Oudenburg piece identifies it as a Trier product.

**SS26. XIATIVAV**

C 0622 / TS 0308 – S 005

Level OS 70956

3

Dish

Illiterate stamp (cf. Frey 1993, 92 and Taf. XVI, 21: attested on a Drag. 31 at the potter workshops excavations of 1914 (Töpferstrasse) and 1917 (Louis-Linz-Strasse))

?

**SS27. I?]MI(?)N[ ]z**

C 2982 / TS 1206b – S 119

Level OS 44928

4+5

Drag. 31 (TRI SA B)

No match found

?

**SS28. ]°NIE[**

OS 22926 B 015 / TS 1044 – S 132

Secondary filling of well OS 22926

4

Dish?

No match found

?

**SS29. JVCA FII or JVSSA FE (with ligature VS?)**

OS 22926 B 039 / TS 1068 – S 136

Secondary filling of well OS 22926

4

Drag. 36?

No match found. It is however possible that it concerns Mercussa, the same potter as SS21 (but

with another die), but there are no known parallels for this potter.  
?

SS30. **]SFII** broken off and abraded  
C 3263 / TS 1487 – S 094  
Level OS 8936  
5  
Dish (TRI SA B)  
No match found

## **RHEINZABERN**

SS32. **AT[** abraded  
C 1436 / TS 1003 – S 122  
Unit V: fire layer OS 8905B  
4  
Drag. 36 (burnt to black)  
Atta of Rheinzabern, based on shape of A and largeness of the letters (NOTS vol. 1, 299, die 3a)  
AD 170-220

SS33. **AT[** stamped twice  
C 2967 / TS 1192 – S 085  
Secondary filling of pit OS 4980  
4+5  
Dish  
Attianus iv of Rheinzabern (NOTS vol. 1, 303-306: possibly die 4g or 9a)  
AD 160-260

SS34. **]OLINVS[**  
C 2685 / TS 0752 – S 020  
Fire place OS 7932  
4  
Dish  
Capitolinus of Rheinzabern (NOTS vol. 2, 228-229, die 1a)  
AD 170-260

SS35. **CI[ ?** abraded  
OS 22926 B 038 / TS 1067 – S 135  
Secondary filling of well OS 22926  
4  
Drag. 18/31 or 31  
?Cintugnatus ii of Rheinzabern (NOTS vol. 3, 34-38, die 2a)  
AD 140-180

SS36. **COMITI[** intradecorative stamp, retrograde  
C 2629-2631 / TS 0682-0684 – S 084  
Level OS 8955, to the east of Unit VIII  
4  
Drag. 37  
Comitalis of Rheinzabern (NOTS vol. 3, 95-102: die 3a tab)  
AD 170-240

?

SS31. **]SE**  
C 0532b / TS 0245b – S 146  
Pit OS 71445  
3  
Drag. 31  
Undetermined  
?

SS37. **CRA[**  
C 3359-3360 / TS 1583-1584 – S 092  
Level OS 8914  
5  
Drag. 36  
Craco ii of East Gaul (NOTS vol. 3, 167: die 1a)  
AD 160-260

SS38. **]SIACVSF**  
OS 4923 C.090 / TS 1844 – S 045  
Primary filling of large basin OS 4923  
5  
Dish  
Crassiacus of Rheinzabern (NOTS vol. 3, 170-171: die 1a)  
AD 180-220?

SS39. **]IACVSF**  
C 2281 / TS 0300 – S 068  
Level OS 70910  
3  
Drag. 18/31R or 31R  
Crassiacus of Rheinzabern (NOTS vol. 3, 170-171: die 1a); cf. stamp 32.  
AD 180-220?

SS40. **]ATIVSF[**  
C 2799 / TS 0864 – S 083  
Level OS 8951  
4  
Drag. 18/31 or 31  
Datius of Rheinzabern (NOTS vol. 3, 257-258: die 2a)  
AD 160-240

SS41. **DRV[**  
C 2379 / TS 0429 – S 070  
Layer OS 70214  
3 or 4  
Drag. 32 or 36  
Drucaursus of 'East Gaul' (NOTS vol. 3, 330). Same Drucaursus as stamp 16? In this case however the fabric is clearly Rheinzabern

AD 160-260

**SS42. EVRITVSF**

OS 4980 C.247 – C 0067 / TS 1130 – S 031

Primary filling of large waste-pit OS 4980

4

Lud. SbR

Euritus of Rheinzabern (Oswald 1931, 117; NOTS vol. 3, 369: die 1a)

AD 180-240 / 3rd century AD (pers. comm. dr. I. Huld-Zetsche and dr. M. Thomas)

**SS43. EVRITVSF**

C 0068 / TS 0558 – S 072

Oven debris OS 7955

4

Dish (with graffito G42: intersecting straight lines on the bottom of the base)

Euritus of Rheinzabern (NOTS vol. 3, 369: die 1a)

AD 180-240

**SS44. EV[**

C 2132 / TS 0048 – S 002

Level OS 23962

2

Drag. 31R

Euritus of Rheinzabern (NOTS vol. 3, 369: die 1a)

AD 180-240

**SS45. ]MINV(?)><FE**

C 2493 / TS 0543 – S 021

Level OS 7987

4

Dish (burnt to black)

Firminus ii of Rheinzabern (NOTS vol. 4, 48-49: die 2b)

AD 160-220?

**SS46. FLAVIA[**

C 1120 / 0964 – S 028

Large fire layer OS 7957/7971

4 (end)

Dish (burnt to black)

Flavianus ii of Rheinzabern (NOTS vol. 4, 65: die 2a)

AD 160-260

**SS47. GIA[ ]L(L)VS** abraded

C 1437 / TS 1004 – S 121

Unit V: fire layer OS 8905B

4

Drag. 36

Giamillus v of Rheinzabern (NOTS vol. 4, 207: die 1a: East Gaul)

AD 120-200

SS48. Intradecorative stamp, letters abraded but possibly also badly stamped

C 0213 / TS 0078 – S 143

North side hospital: doubled construction slot OS 82843/82845

2

Drag. 37

Julianus iii of Rheinzabern, based on the freeze decoration style Julius II–Julianus I (NOTS vol. 4, 322-326: die not identifiable).

AD 220-255

SS49. Intradecorative stamp, letters abraded

C 2294 / TS 0335 – S 144

pit OS 80979

3

Drag. 37

Julianus iii of Rheinzabern, based on the ovolo style Julius II–Julianus I (NOTS vol. 4, 322-326: die not identifiable).

AD 220-255

SS50. ]VLIVS Intradecorative stamp, retrograde

C 0071-0201-2113 / TS 0049 – S 108

Pit OS 83765

2

Drag. 37

Julius viii of Rheinzabern (NOTS vol. 4, 335-339: die 5c tab, but end F not stamped here (wiped))

AD 220-255

**SS51. ]SFEC**

C 3053 / TS 1276 – S 087

Level OS 7935

4+5

Drag. 18/31 or 31

?Latinianus of Rheinzabern (NOTS vol. 5, 21-22: die 1a)

AD 160-260

**SS52. MAGIOF**

C 3340 / TS 1564 – S 091

Layer OS 7397

5

Dish

Magio ii of Rheinzabern (NOTS vol. 5, 201-202: die 2a)

AD 160-260

**SS53. MA[**

C 3039 / TS 1263 – S 040

Level OS 4971

4+5

Drag. 31

Magio ii of Rheinzabern (NOTS vol. 5, 201-202: die 2a)

AD 160-260

SS54. **MARTINF** retrograde with ligature NF

OS 4923 C.061 / TS 1815 – S 044



Construction pit of large basin OS 4923  
5  
Drag. 33 or 40 (fabric very close to TRI SA A)  
Martinus v of Rheinzabern (NOTS vol. 5, 321-323:  
die 4a), active in Pfaffenhofen, Rheinzabern and  
Westerndorf  
AD 170-250

SS55. **MATER[**  
C 2153 / TS 0099 – S 066  
Pit OS 70960  
2  
Dish  
Materninus iii of Rheinzabern (NOTS vol. 6, 10:  
die?)  
AD 160-260

SS56. **NVDIN[**  
C 2270 / TS 0289 – S 069  
Level OS 80992  
3  
Drag. 31R?  
Nundinus ii of Rheinzabern (NOTS vol. 6, 267-268:  
die 3b)  
AD 160-260

SS57. **ONE[** stamped twice but separate (different  
directions)  
C 3158 / TS 1381 – S 073  
Covering layer on top of Unit V level 4  
5(+4)  
Drag. 32 or 36  
Oneratus of Rheinzabern (NOTS vol. 6, 282: die 1a)  
AD 160-260

SS58. **O[ ]R abraded**  
C 2235 / TS 0240 – S 004  
Pit OS 80982  
3  
Drag. 18/31 or 31  
Onnior of Rheinzabern (NOTS vol. 6, 283: die 1a)  
AD 160-260

SS59. **PAT[**  
C 2895 / TS 1029 – S 038  
Pit OS 7949  
4  
Drag. 18/31  
Patruinus i of Rheinzabern (NOTS vol. 7, 89-90, die  
3a)  
AD 160-260

SS60. **PIIP.POFIIC**  
C 0845 / TS 0252 – S 015  
Level OS 70965  
Mixed level  
Dish

Peppo of Rheinzabern (NOTS, vol. 7, 124-125: die  
2a)  
AD 160-260

SS61. **JNVS** Intradecorative stamp, retrograde  
C 2326 / TS 0369 – S 131  
Level OS 70919  
3+4  
Drag. 37  
Probably Respectinus (ii) (NOTS vol. 7, 380-383,  
die 2c tab)  
AD 220-260?

SS62. **SAT[**  
C 3324 / TS 1548 – S 048  
Level OS 4912  
5  
Drag. 32 or 36  
Satinus of Rheinzabern (NOTS 8, 97-98: die 2a)  
AD 160-260

SS63. **SEVERIANVSFE**  
C 2896 / TS 1030 – S 039  
Pit OS 7949  
4  
Drag. 31  
Severianus ii of Rheinzabern (NOTS vol. 8, 245-  
248: die 2a)  
AD 190-240?

SS64. **SIIVIIR[**  
C 0060 / TS 0938 – S 105  
Layer OS 22551  
4  
Drag. 36R (with graffito G36: PRI on the bottom of  
the base)  
Severianus ii of Rheinzabern (NOTS vol. 8, 245-  
248: die 3d)  
AD 190-240?

SS65. **]ARENTINVSF** abraded  
C 2508 / TS 0560 – S 026  
Level OS 7966  
4  
Dish  
?Tarentinus of Rheinzabern (Oswald 1931, 311 (on  
a Drag. 32 from Cologne: Arentinus; NOTS vol. 9,  
9) (Hartley and Dickinson 2012, 9 mention it is  
possible that an East Gaulish Tarentinus existed  
(they think of Trier) but it is uncertain)  
Late 2nd or 3rd century

SS66. **VE[ ]S-E** with ligature FE  
OS 4980 C.015 / TS 1102 – S 030  
Primary filling of large waste-pit OS 4980  
4  
Drag. 31R (Lud. SbR)

Verus vi of Rheinzabern (NOTS vol. 9, 213-217: die 3f; Oswald 1931, 332; Ludowici 1912, 4, 64, stamp 8345). A stamped vessel from Verus was found at the Trier Louis-Linz-Strasse potter workshop (Loeschke 1923) in a find context dated to AD 260-275. The die differs from the Oudenburg die and it is not clear if this potter moved from Rheinzabern to Trier or not (Dr. I. Huld-Zetsche, pers. comm.) AD 210-260/270

SS67. **VII[** ? abraded  
C 2185 / TS 0180 – S 009  
Pit OS 70906  
3  
Dish  
No match found  
?

SS68. **VI[**  
C 2639 / TS 0693 – S 024  
Level OS 2953  
4  
Dish  
Victor v or Victorinus ii of Rheinzabern (NOTS vol. 9, 232-236/237-248)  
AD 220-260 / 210-250

SS69. **VIC[ ]RMIF** abraded  
OS 22926 B 032 / TS 1061 – S 134  
Secondary filling of well OS 22926  
4  
Dish  
Victorinus ii of Rheinzabern (NOTS vol. 9, 237-248: die 11a)  
AD 210-255

SS70. **II/XIIX** (in Vanhoutte, Dhaeze and De Clercq 2009 wrongly noted as IIXVIIIX)  
OS 4980 C.032 / TS 1119 – S 029  
Primary fill of pit OS 4980  
4  
Lud. Ta/Te  
Illiterate stamp  
?

SS71. **R(?)][V?]M[** ? abraded  
C 0620-0626 / TS 0306 – S 007/017  
Level OS 70956  
3  
Drag. 31R

### **FABRIC UNDET.**

SS77. **BR[** ?  
C 3052 / TS 1275 – S 086  
Level OS 7935  
4+5

No match found. A possibility is perhaps RVCATANI, found on a Drag. 18/31 in the civil settlement to the west of the fort (Creus 1975, 13-14: Afb. 5: 9), however identified as Ruccatanus, a potter from Trier.  
?

SS72. **]VS[ : ]VSA or ]VSM** ?  
OS 2562 C.280 / TS 1746 – S 043  
Construction pit of double well OS 2562  
5  
Drag. 36  
No match found  
?

SS73. **]CII or ]VIC[** retrograde  
C 2155 / TS 0101 – S 130  
Construction slot OS 83768  
2A  
Dish  
No match found  
?

SS74. **]A?[ ]NF** abraded  
C 2204 / TS 0201 - S 013  
Level OS 70908  
3  
Drag. 18/31 or 31  
No match found  
?

SS75. **]VIII or ]XIII ante-cocturam**  
C 2419 / TS 0469 – S 115  
Layer OS 1.1 bis (7)  
4  
Drag. 32 or 36  
Illiterate? *ante cocturam* stamp referring to a number. Two potters are known from Rheinzabern using this kind of stamp: Attianus and Belatullus (Schücker, Jung and Thomas 2011, 338-348).  
?

SS76. **]V2**  
C 2894 / TS 1028 – S 037  
Pit OS 7949  
4  
Dish (fabric burnt, but most likely Rheinzabern)  
No match found  
?

Drag. 18/31 (burnt to black)  
No match found  
?

SS78. **JNEV** retrograde, with ligature EN  
C 3245 / TS 1469 – S 047  
Level OS 2986  
5  
Drag. 32 or 36  
No match found  
?

SS79. **JVIIVX (?)**  
C 2730 / TS 0797 – S 077  
Level OS 7983  
4  
Dish (burnt)

Illiterate stamp  
No match found  
?

SS80. **JXA[** or **JVX[**  
C 2638 / TS 0692 – S 023  
Level OS 2953  
4  
Dish  
No match found; according to fabric East-Gaulish  
?

### 13.2. ROSETTE STAMPS

#### **LEZOUX**

SS81. Five-fold rosette  
C 1932 / TS 0170 – S 012  
Level rampart I OS 30916  
1  
Curle 23 (TS-LX4)  
?  
?

SS82. Eight-fold rosette  
C 0846 / TS 0253 – S 016  
Level OS 70965  
3  
Drag. 33 (TS-LX4)  
?

#### **RHEINZABERN**

SS83. Four-leaved rosette  
C 3054 / TS 1277 – S 088  
Level OS 7935  
4+5  
Dish  
?  
?

### 13.3. STRICH STAMPS

#### **TRIER**

SS84. **Strich**  
C 2941 / TS 1166 – S 036  
Primary fill large waste-pit OS 4980  
4  
Dish

SS85. **Strich**  
OS 22926 B 026 / TS 1055 – S 133  
Secondary filling in of well OS 22926  
4

Drag. 36?

SS86. **Strich**  
C 2575 / TS 0628 – S 113  
Level OS 7930  
4  
Dish

SS87. **Strich**  
C 2463a / TS 0513 – S 141

Level OS 80917

4

Drag. 31

**SS88. Strich**

C 2466 / TS 0516 – S 116

Level OS 7937

4

Dish

**SS89. Strich**

C 3204 / TS 1428 – S 126

Layer OS 8748

5

Dish (TRI SA A)

**SS90. Strich**

C 3186 / TS 1410 – S 124

Level OS 8930

5

Drag. 36 (TRI SA B)

**RHEINZABERN**

**SS91. Strich**

C 2205a / TS 0210 – S 140

Level OS 70908

3

Dish

**SS92. Strich**

C 2267 / TS 0286 – S 111

Level OS 7985

3

Lud. Tg

**SS93. Strich**

C 2589 / TS 0642 – S 112

Layer OS 22713

4

Dish

**SS94. Strich**

C 3178a / TS 1402a – S 125

Level OS 8934

5

Drag. 18/31

**FABRIC UNDET.**

**SS95. Strich**

C 0966c / TS 0166 – S 123

Pit OS 80925

3

Drag. 18/31 (burnt to black)

**SS96. Strich**

C 2525 / TS 0577 – S 114

Pit OS 7999

4

DishR (burnt to black) (with graffito G27: straight line with straight-angled line upon on bottom of base)

**SS97. Strich**

C 2463b – S 155

Level OS 80917

4

Dish (burnt to black)

**SS98. Strich**

C 3076 / TS 1299 – S 106

Level OS 8956

4+5

Drag. 18/31 or 31 (burnt to black)

## 14. Catalogue of the decorated samian of the south-west corner site

For each decoration<sup>68</sup> the following data are listed:

*Drawing no.*

*Context in which the fragment was found*

*Fort level to which the context belongs*

*Fragment type (CP: complete profile; R: rim; W: wall; B: base)*

*Description of the decoration*

*Identified potter/style*

*Established dating of the potter or style group*

### **LA GRAUFESENQUE**

La Graufesenque

**DS1.** C 5193

Large pit OS 44940

4

1 W Drag. 29 or 37 (reworked as counter)

Part of panel freeze with metopes (bordered with beaded rows with small rosettes on the corners) of which one contains arrowheads, above part of undefined figure, to the left back legs of animal to the left. Comparable composition shown by Momo: Mees 1995, Taf. 144: 1.

**Momo (Mommo)** (NOTS, vol. 6, 135-148)

AD 60-85 according to NOTS, vol. 6, 146; AD 70-90 according to Mees 1995, 88

La Graufesenque

**DS2.** C 5278 / TS 3801

Mixed level earthen rampart OS 30915

1>4

1 W Drag. 37

Part of freeze with panel decoration with saltire with bud tendrils and torted endings enclosing triple leaf motif. Combination of motifs shown by M. Crestio (Mees 1995, Taf. 37: 3, Taf. 38: 1), Memor (idem, Taf. 124: 2) and Mercator (Knorr 1919, Taf. 57: A, B, J; Mees 1995, Taf. 129: 1, 2, 3, 7).

**M. Crestio, Memor** or **Mercator**

AD 70-110 (M. Crestio: c. AD 80-110 (Mees 1995, 75; NOTS, vol. 3, 174); Memor: AD 75-95 (Mees 1995, 86) / AD 60-90 (NOTS, vol. 6, 78); Mercator: AD 80-90 (Mees 1995, 86) / AD 70-110 (NOTS, vol. 6, 86))

La Graufesenque

**DS3.** C 0202 / TS 0069

Level SO 81902

2

1 W Drag. 37

Ovolo Knorr 1919, Taf. 57, 19, delineated by beaded row, with underneath top of the freeze with branches of leafless tree. Ovolo used by several late Flavian potters like Mercator, Germanus, ...: see for example Zwammerdam (Haalebos 1977, Taf. 35: 68, 69, 84, 85).

**Mercator, Germanus** or related potter

Late Flavian (c. AD 80-96) or little later (Mercator: AD 80-90 (Mees 1995, 86) / AD 70-110 (NOTS, vol. 6, 86); Germanus: AD 65-90 (NOTS, vol. 4, 196))

La Graufesenque

**DS4.** C 2753 / TS 0821

Hearth OS 7927 (level OS 7927.III)

4

1 W Drag. 37

Part of freeze with ovolo with three-pointed dart curving with the egg and placed to the right, and freeze with scrolls with leafs. Ovolo and scroll motif with leafs used by Censor/Censorinus (Mees 1995, Taf. 22: 3), M. Crestio (idem, Taf. 36: 7), Crucuro ii (idem, Taf. 54: 1), Mercator (idem, Taf. 128: 1, 2).

**Censor/Censorinus, M. Crestio, Crucuro II** or **Mercator**

AD 70-120 (Censor/Censorinus: c. AD 80-100 (Mees 1995, 73-74) = Censor i/Censorinus i: AD 70-90/70-110? (NOTS, vol. 2, 340 and 342), M. Crestio: c. AD 80-110 (Mees 1995, 75; NOTS, vol. 3, 174), Crucuro II: AD 90-120 (Mees 1995, 76) = Crucuro i: AD 75-110 (NOTS, vol. 3, 209), Mercator: AD 80-90 (idem, 86) / AD 70-110 (NOTS, vol. 6, 86))

La Graufesenque

**DS5.** C 2096 / TS 0008

Cultivated soil pre-dating the fort

<sup>68</sup> The catalogue of the samian decorations comprises all fragments displaying a 'readable' decoration. The fragments are classified according to fabric/origin and further per style or potter in chronological order, with first the complete profiles, then the rims and bases, consequently the wall fragments displaying an ovolo and finally the remaining freeze fragments.

Pre-castellum / 1

1 W Drag. 37

Part of freeze with gladiator to the right holding bent sword Knorr 1919, Taf. 25: 8 / variant on Oswald (1936) 1016/1018, on top of beaded row which borders the base row of the freeze consisting of flowers. Same composition on three stamped Drag. 37 bowls by L. Cosius, one found at Sète-Barrou (F) (Mees 1995, Taf. 27: 5) and two at La Graufesenque (idem, Taf. 29: 1; Taf. 34: 4).

**L. Cosius (Virilis)**

AD 100-130 (Mees 1995, 74) / AD 75-110 (NOTS vol. 3, 146)

## **LES MARTRES-DE-VEYRE**

Les Martres-de-Veyre

**DS7.** OS 4923 C.028

Construction pit of large water-basin OS 4923

5

1 W Drag. 37

Base of freeze with small, double smooth medallion cutting the baseline and part of leaf motif Ri-Fi

## **LEZOUX**

Lezoux

**DS8.** OS 2562 C.020 / TS 1640

Double well OS 2562: level OS 2562.2 (filling-in of inner well)

5

1 W Drag. 37 (with one repair hole) (TS-LX4)

Part of freeze with motif Rogers Q58 'pair of inverted dolphins on top of basket', with above this motif shield, part of sitting Mars Oswald 151, and to the right three smooth lines, probably part of a large scroll (see f. ex. CGP, Pl. 161, 53 and Pl. 162, 60). Motif Q58 is regularly occurring in the work of Cinnamus II in combination with other motifs. The exact same combination of motifs has been found on a stamped Drag. 37 bowl of Cinnamus ii at York, cf. Dickinson 1997, fig. 380, no.3458.

**Cinnamus II** (= Cinnamus ii (NOTS, vol. 3, 22-31) AD 135-180 (NOTS vol. 3, 30)

Lezoux

**DS9.** C 2139 / TS 0056

Posthole OS 11095

2

1 W Drag. 37 (TS-LX4)

Part of freeze with panel decoration divided by beaded rows with standing Apollo Oswald 632 and

La Graufesenque (burnt to black)

**DS6.** C 2724

Posthole(?) OS 80369

4

1 W bowl(?)

Part of freeze with moulded decoration showing vegetal motif.

No parallel found

AD 70-120?

P145 turned upside down. Similar compositions in style of Cettus/Satus ('Small S-Potter') (Terrisse 1968, 52-53): see CGP, Pl. 141-143.

**Cettus/Satus ('Small S-Potter')**

AD 130-160 (NOTS vol. 3, 6)

star-like motif Rogers U44. The combination of motifs probably refers to Cinnamus II.

**Cinnamus II**

AD 135-180 (NOTS vol. 3, 30)

Lezoux

**DS10.** C 3382 / TS 1605

Level OS 4944

5

1 W Drag. 37 (TS-LX4)

Part of ovolo with smooth line underneath, with upper side of freeze with sitting Apollo Oswald 94a. This Apollo-figure is used a lot by Iullinus (see f. ex. CGP Pl. 125: 1 and 3, 126: 17-18), but is also shown by Advocisus, Carantinus, the Paternus group and the Cinnamus group.

**Iullinus, Advocisus, Carantinus, Paternus or Cinnamus**

AD 130-200 (Iullinus: AD 160-200 (NOTS, vol. 4, 366); Advocisus: AD 160-200 (NOTS, vol. 1, 79); Carantinus: AD 150-180 (NOTS, vol. 2, 235); Paternus group: AD 130-185 (NOTS, vol. 7, 53-62); Cinnamus: AD 135-180 (NOTS, vol. 3, 30))

Lezoux

**DS11.** C 2247 / TS 0266

Rampart level OS 30907

3  
1 R Drag. 37 (rim diam.: 160 mm; EVE: 4) (TS-LX4)  
Ovolo Rogers B105 with astragal border Rogers A11 underneath, cf. CGP, Pl. 102, 11-15. This combination is used by Censorinus (II) (CGP, 191: Fig. 29: 2).  
**Censorinus II/ii** (NOTS, vol. 2, 342-344)  
c. AD 160-190 (Bird 1986, 152; NOTS, vol. 2, 344)

Lezoux  
**DS12.** C 2147 / TS 0065  
Level OS 10901  
2

1 W Drag. 37 (TS-LX4)  
Edgy ovolo Rogers B147.  
**Servus II** (Rogers 1974) (= Servus iv (NOTS vol. 8, 239-241))  
AD 160-200 (233; NOTS, vol. 8, 241)

Lezoux  
**DS13.** C 1940/2122 / TS 0178/0039  
Rampart level OS 30916  
1

1 W and 1 B Drag. 37 (TS-LX4)  
Base of freeze with metopes and panels with zigzag-borders: cushion Rogers C98 underneath branch motif Rogers U281 flanked by two spindles, rosette Rogers C98, various striated spindles and part of a leaf Rogers H137 or H129; a curled line at the base of the panel is probably the stem of the leaf. The composition as a whole refers to Iustus II (see CGP, Pl. 110, 7-8).  
**Iustus II/ii** (NOTS, vol. 4, 389-392)  
AD 160-200 (NOTS, vol. 4, 392)

Lezoux (TS-LX4)  
**DS14.** C 0850 / TS 0257  
Level OS 70965

## **LA MADELEINE**

La Madeleine  
**DS18.** C 3369b / TS 1593c  
Level OS 8914  
5

1 W Drag. 37  
Upper part of freeze consisting of V-shaped leafs (bifols) instead of ovolo: cf. Arentsburg: Holwerda 1923, Pl. XXXVIII: Afb. 72: 12-17; cf. Zwammerdam: Haalebos 1977, Taf. 40, 186; see also Fölzer 1913, Taf. XXIV: 24. This element occurs on pieces attributed by Holwerda to Virtus/Virtuus of La Madeleine (Holwerda 1923, 111-112).  
**Virtus/Virtuus**

3?  
1 W Drag. 37 (TS-LX4)  
Remains of badly stamped ovolo, probably Rogers B180, with pearl row underneath, a combination used by Mercator II: cf. Rogers 1974, Pl. 145.  
**Mercator II** (Rogers 1974) (=Mercator iv) NOTS, vol. 6, 89-92)  
AD 160-200 (NOTS, vol. 6, 92)

Lezoux  
**DS15.** C 5266 / TS 3789  
Mixed level OS 7900C  
1>5  
1 W Drag. 37 (TS-LX4)  
Part of freeze with double-lined medallion with unidentifiable figure type.  
No potter identification possible.  
Late Antonine? (c. AD 170-193)

Lezoux  
**DS16.** C 3329 / TS 1553  
Level OS 4912  
5  
1 W Drag. 37 (TS-LX4)  
Lower part of freeze with running animals (hunting scene): figures too fragmentary for further identification.  
No potter identification possible.  
Late Antonine? (c. AD 170-193)

Lezoux? (burnt to black)  
**DS17.** C 2673 / TS 0727  
Fire layer OS 7980  
4  
1 W Drag. 37  
Part of (blurred) ovolo, possibly Rogers B248, used by unknown potter.  
Unknown potter  
?

AD 120-130? (NOTS, vol. 9, 292)

La Madeleine  
**DS19.** C 2903 / TS 1037  
Pit OS 7949  
4  
1 W Drag. 37  
Ovolo Ricken Taf. 7, C but stamped upside down and part of freeze with Amor walking to the left Ri-Fi M110a in panel marked by double pearl staff, with to the left fragment of saltire or diagonal pearl staff. Same combination of ovolo upside down and pearl staffs at Arentsburg: van Diepen and Niemeijer 2011, 203: Abb. 16, D29.



## **Ware mit Eierstab C**

AD 120-190

La Madeleine

**DS20.** C 2121 / TS 0038

Rampart level OS 30916

1

1 W Drag. 37

Base limit of freeze with a border of bifols within two smooth lines and start of double smooth

## **ARGONNE**

Argonne

**DS21.** C 2232 / TS 0237

Pit OS 23167

3

2 W Drag. 37

Part of freeze with at the left figure with lifted right arm Hofmann 63a / Raepsaet-Charlier and Clause H8, and at the right smaller figure with lifted right arm Hofmann 36 / Raepsaet-Charlier and Clause H18; to the left of figure Hofmann 63a part of small unidentified figure type. All these motifs are used by one of the students of Tocca.

### **Tocca group**

AD 130-170 (NOTS, vol. 9, 82)

Argonne

**DS22.** C 5279 / TS 3802

Mixed level OS 30915

1>4

1 W Drag. 37

Part of very wide-standing ovolo, probably Chenet and Gaudron (1955) X1 / Raepsaet-Charlier and Clause O14, and start of freeze with curled leaf Hofmann 345. Location of leaf comparable with composition Chenet and Gaudron 1955, 227: Fig. 62, 9 (Lavoye). Ovolo and leaf used by Tribunus of Lavoye.

### **Tribunus (ii) of Lavoye**

AD 150-200 (NOTS, vol. 9, 100)

Argonne

**DS23.** C 2978 / TS 1203

Secondary filling of large waste-pit OS 4980

4/5

1 W Drag. 37

Ovolo Raepsaet-Charlier and Clause O1/O2 with wavy line below and part of freeze with panel decoration with two festoons Raepsaet-Charlier and Clause D1; festoon to the right with stylized cup Raepsaet-Charlier and Clause D42 / Hofmann 525. Similar composition shown by Raepsaet-Charlier and Clause 1978, Pl. XIX, 101. Cup motif used by Tribunus of Lavoye.

medallion. Border of bifols: cf. Arentsburg: Holwerda 1923, Pl. XL: Afb. 74, 12, 13, 18-20, 23-25; van Diepen and Niemeijer 2011, 204: Abb. 17, D53-D54 (the latter also in combination with medallion, here single); cf. Zwammerdam: Haalebos 1977, Taf. 41, 200; Taf. 43, 231. This element appears to be characteristic for Sacer (C.C. Sacri) of La Madeleine.

### **Sacer (C.C. Sacri)**

AD 125-155 (NOTS, vol. 2, 144)

### **Tribunus (ii) of Lavoye**

AD 150-200 (NOTS, vol. 9, 100)

Argonne

**DS24.** C 2985 / TS 1209

Bottom filling of large waste-pit OS 4980 (4) or bottom of construction pit of basin OS 4923 (5) which has cut the waste-pit of level 4 4/5

1 W Drag. 37

Ovolo Chenet and Gaudron (1955) X1(?) (with deep pending dart) cut by smooth line underneath and start of freeze with head of running human to the left. Same composition by Tribunus: Chenet and Gaudron 1955, 223: Fig. 60, E.

### **Tribunus (ii) of Lavoye**

AD 150-200 (NOTS, vol. 9, 100)

Argonne

**DS25.** C 0594 / TS 0191

Level OS 70909

3

1 W Drag. 37

Part of free-style freeze with spirals Hofmann 503 and grass bunch motif Hofmann 519. Identical decoration on mould from Lavoye: Chenet and Gaudron 1955, 227: Fig. 62, L.

### **Tribunus (ii) of Lavoye**

AD 150-200 (NOTS, vol. 9, 100)

Argonne

**DS26.** C 2274 / TS 1444

Stone level OS 7986/7993

3

1 W Drag. 37

Part of ovolo (Chenet and Gaudron (1955) X1?) delineated underneath by smooth line.

### **?Tribunus (ii) of Lavoye**

AD 150-200 (NOTS, vol. 9, 100)

Argonne

**DS27.** C 5264 / TS 3787

Mixed level OS 7900C

1>5

Complete base Drag. 37

Bottom part of freeze with panel decoration and rosettes (Raepsaet-Charlier and Clausse rosette D66 / Hofmann 447) probably dividing the panels with wavy lines or beaded rows. Similar decoration cf. Chenet and Gaudron 1955, 217: Fig. 57, B, P respectively attested at La Vaux-Régnier and at Lavoye; cf. also Vieux-Virton: Raepsaet and Clausse 1978, 80: Pl. XIX, 97 and Arentsburg: Holwerda 1923, Pl. XLVIII: Afb. 82, 2; van Diepen and Niemeijer 2011, 206: Abb. 19, D84-D87.

**Ware mit Eierstab G / Tribunus?**

AD 150-200

Argonne

**DS28.** C 2103 / TS 0020

Fill of ditches level 1 and 2

1/2

1 W Drag. 37

Ovolo (broken off) with wavy line underneath and part of abraded freeze with double-lined smooth festoons with at least one enclosing twofold leaf Raepsaet-Charlier and Clausse D 59 / Fölzer 401 / Hofmann 403. Leaf motif used by Gesatus (?) of Lavoye (Hoffman 1968).

**Gesatus** (=Cesatus ii) **of Lavoye** (NOTS, vol. 3, 3))

AD 150-200 (Hofmann 1968, 275; NOTS, vol. 3, 3)

Argonne

**DS29.** C 0130-C 2192a / TS 0106-TS 0195

Pit OS 11063 (3 W; level 2) and level OS 1924 (1 W; level 3)

2

4 W Drag. 37, not fitting

Ovolo delineated by beaded row and top of freeze with vegetal motif, probably Hofmann 381 / Raepsaet and Clausse P3, but dirty mould. Vegetal motif used by Eburus of Lavoye.

**Eburus of Lavoye**

AD 150-200 (Deschieter *et al.* 2012)

Argonne

**DS30.** OS 2562 C.060 / TS 1676

Double well OS 2562, secondary filling in after abandonment inner well

End 5

1 W Drag. 37

Part of freeze with parade of running lions (or dogs?) to the right Hofmann 151. Worn surface. Similar composition shown by Eburus of Lavoye, found on mould: Chenet and Gaudron, 1955, 47: Fig. 19, 13.

**Eburus of Lavoye** (Atelier du gobeletier de Lavoye)

AD 150-200 (Deschieter *et al.* 2012)

Argonne

**DS31.** C 0131a / TS 0107a

Pit OS 11063

2

1 W Drag. 37

Blurred ovolo and part of freeze with jumping dog to the left Hofmann 250. Dog used by Africanus and Germanus.

**Africanus** (=Africanus iii of Lavoye (NOTS, vol. 1, 98) / **Germanus** (=Germanus iii of Lavoye (NOTS, vol. 4, 200)

AD 160-200 (?) (NOTS, vol. 1, 98 – vol. 4, 200)

Argonne

**DS32.** C 0059a-C 0070-C 2657 / TS 0711

level OS 2953 (4) – level OS 2996 (4) – level OS 7044 F (4+5+post) (cross joining sherds; slightly burnt after breakage)

4

3 R, 5 W Drag. 37 (rim diam.: 394 mm; EVE: 31) Ovolo Ricken C or D, lignated by a beaded border; freeze consisting of panel decoration divided by vegetal column Hofmann 496 with on the top and at the base rosette motif Hofmann 447, and with dispersed small branches (Ricken 1934, Taf. VII, 18 or 19); panel consisting of festoon Raepsaet-Charlier and Clausse D3 and medallion with Andreas cross Hofmann 412 / Raepsaet-Charlier and Clausse D39 and deer to the left Hofmann 209. Similar composition at Arentsburg: Holwerda 1923, Pl. XLVII: Afb. 81, 27, but with different ovolo. Same combination of vegetal column Hofmann 496 with rosettes Hofmann 447, with medallion with Andreas cross Hofmann 412 at Arentsburg: van Diepen and Niemeijer 2011, 206: Abb. 19, D84.

**Ware mit Eierstab G** (Eburus, Tribunus, Germanus, Africanus, Tocca (Hofmann 1968))

AD 150-220/250?

Argonne

**DS33.** C 5275 / TS 3798

Mixed level OS 30915

1>4

1 R Drag. 37 (rim diam.: 230 mm; EVE: 8)

Ovolo Raepsaet-Charlier and Clausse O2, delineated by smooth line, and upper part of leaf motif underneath, likely top of panel division element. Same combination at Arentsburg: van Diepen and Niemeijer 2011, 206: Abb. 19, D89.

**Ware mit Eierstab G?**

AD 150-220/250?

Argonne

**DS34.** OS 4923 C.008 / TS 1762b

Construction pit (OS 4974) large water-basin OS 4923

5

1 W Drag. 37

Ovolo Raepsaet-Charlier and Clause O10 and part of freeze with to the left lion running to the left Raepsaet-Charlier and Clause A1 / Hofmann 179B and to the right smaller version of the same lion (?). Comparable composition shown by Raepsaet-Charlier and Clause 1978, 71: Pl. XV, 61.

No potter identification  
AD 150-220/250?

Argonne

**DS35.** C 2658 / TS 0712

Level OS 2953

4

1 W Drag. 37

Part of ovolo, probably Raepsaet-Charlier and Clause O10, and part of double smooth medallion (too small to identify more accurate).

No potter identification possible  
AD 150-220/250?

Argonne

**DS36.** C 3220 / TS 1444

Layer OS 2014

5

1 R Drag. 37 (rim diam.: 188 mm; EVE: 6)

Part of ovolo, probably Raepsaet-Charlier and Clause O9 or O10.

No potter identification possible  
AD 150-220/250?

Argonne

**DS37.** OS 4980 C.006 / TS 1093

Large waste-pit OS 4980

4

1 W Drag. 37

Ovolo, probably Raepsaet-Charlier and Clause O6? (dirty mould).

No potter identification possible  
AD 150-220/250?

Argonne

**DS38.** C 0429 / TS 0094

Level OS 70972

2

## **BLICKWEILER**

Blickweiler (very calcareous fabric)

**DS42.** C 2465 / TS 0515

Level OS 80917

4

1 W Drag. 37

Part of lower freeze, decorated with line of rosettes Knorr-Sprater (1927) Taf. 82, 46 (popular motif at

1 W Drag. 37

Part of freeze with medallion Raepsaet-Charlier and Clause D14 to the left and festoon Raepsaet-Charlier and Clause D6 ('triple arcade').

No potter identification possible  
AD 150-220/250?

Argonne

**DS39.** OS 2562 C.030 / TS 1732b

Double well OS 2562, filling-in between both frameworks, tpq (dendro) AD 319-322

5

1 W Drag. 37

Part of freeze with leaf Raepsaet-Charlier and Clause P11, with on top running lion to the right Raepsaet-Charlier and Clause A5 and to the left of the leaf probably start of running animal, possibly running deer to the left Raepsaet-Charlier and Clause A26?

No parallel found  
AD 150-220/250?

Argonne

**DS40.** C 2192c-d / TS 0197a-b

Level OS 1924

3

2 W Drag. 37, not joining

Parts of freeze: back part of running animal to the left (c) and unidentified part of human figure (d)

No potter identification possible  
AD 150-220/250?

Argonne

**DS41.** C 0131b / TS 0107b

Pit OS 11063

2

1 W Drag. 37

Part of freeze with running animal to the right (dog or deer?)

No potter identification possible  
AD 150-220/250?

Blickweiler) bordered by smooth lines, and with panel decoration with bird to the right and trifold leaf.

No exact parallel found

AD 105-160 (Delage in Brulet *et al.* (réd.) 2010, 173)

## **TRIER**

Trier

**DS43.** C 3168 / TS 1392

Level OS 8905A covering Unit V of level 4

5 (+4)

1 W Drag. 37 (TRI SA A)

Part of the lower freeze delignated by a compact row of bifold leafs Huld-Zetsche (1972) O47 with smooth line underneath, with stem of vegetal motif (?) starting in this row and above edge of rosette?. Bifold leaf row only delignated underneath: cf. Huld-Zetsche 1972, Taf. 2: A16.

### **Werkstatt I**

c. AD 130-150 (Huld-Zetsche 1972, 78)

Trier

**DS44.** C 0057 / TS 0590

Level OS 7934

4

1 W Drag. 37

Ovolo Huld-Zetsche E16 and part of freeze with women's head Huld-Zetsche M 73 / Fölzer 553 in double toothed medallion Huld-Zetsche K 23, boxer to the left Huld-Zetsche M 119 / Fölzer 525, boxer to the right Huld-Zetsche M 120 / Fölzer 524, little tree Huld-Zetsche O 148 / Fölzer 752, and base line consisting of bifold leafs Huld-Zetsche O 124. Identical decoration on pottery fragment 1172 found at Colchester: Bird 1999, 114: Fig. 2.59.

### **Werkstatt II**

AD 145-165 (Huld-Zetsche 1993, 45)

Trier

**DS45.** C 3026 / TS 1250

Mixed level OS 7952

4+5

1 W Drag. 37 (burnt to black)

Base of ovolo and part of freeze (burnt to black) with large rosette Huld-Zetsche O 96 / Fölzer 847 and part of head of running animal to the left (running hare? Fölzer 667).

### **Werkstatt II**

AD 145-165 (Huld-Zetsche 1993, 45)

Trier

**DS46.** C 2458 / TS 0508

Level OS 80917

4

1 R Drag. 37 (rim diam.: 240; EVE: 10) (TRI SA B) Ovolo Huld-Zetsche E16 (badly stamped) and fragment of freeze with head of figure, probably boxer to the right Huld-Zetsche M 121 / Fölzer 506. Cf. Huld-Zetsche 1993, Taf. 51: E1; see also Butzbach: Müller 1968, Taf. 40, 1082-1083; Den Haag - Ockenburgh II *vicus*: Waasdorp and van

Zoolingen 2015, 151: Afb. 3.9, no. 3560.2;

Schillingen: Fölzer 1913, Taf. XXIII: 2.

**Werkstatt II 'spätere Ausformung'**

AD 170-210 (Huld-Zetsche 1993, 53)

Trier

**DS47.** C 2108 / TS 0025

Construction slot OS 83768

2

1 W Drag. 37 (TRI SA B)

Ovolo without staff Huld-Zetsche E 12 (dirty mould) with smooth (?) line underneath and part of erotic scene Huld-Zetsche M 96 / Fölzer 528 (see Fölzer 1913, Taf. XII: 26): cf. Huld-Zetsche 1993, Taf. 22: A 155.

**Werkstatt II 'spätere Ausformung'**

AD 170-210 (Huld-Zetsche 1993, 53)

Trier

**DS48.** C 0593 / TS 0190

Level OS 70909

3

1 W Drag. 37 (TRI SA B)

Ovolo Huld-Zetsche E 14 or E 15 and part of freeze with probably top of antler of deer Huld-Zetsche T 77 (deer running to the left).

**Werkstatt II 'spätere Ausformung'**

AD 170-210 (Huld-Zetsche 1993, 53)

Trier

**DS49.** C 2832 / TS 0897

Level OS 80942

4

1 W Drag. 37 (TRI SA A)

Part of freeze with baseline consisting of bifold leafs to the left Huld-Zetsche O 124 (?), erotic scene Huld-Zetsche M 98 and start of small pearl medallion at the line delignating the ovolo (broken off) underneath. Same composition as Huld-Zetsche 1993, Taf. 84: F179. Identical piece at Kortrijk (B), Julien Liebaertlaan (BST-site) (seen by Johan Deschieter). Combination of bifold leaf row and erotic scene shown by Fölzer 1913, Taf. XXIII: 22, Taf. XXIV: 4.

**Werkstatt II 'spätere Ausformung'**

AD 170-210 (Huld-Zetsche 1993, 53)

Trier

**DS50.** C 1490 / TS 1000

Level OS 7947

4

1 W Drag. 37 (TRI SA B)

Ovolo without dart Huld-Zetsche E 12.

**Werkstatt II 'spätere Ausformung' / Maiaaus group**

AD 170-210 (Huld-Zetsche 1993, 53) / 165/170-190/200 (Huld-Zetsche 1993, 43-45; Brulet *et al.* (réd.) 2010, 195)

Trier

**DS51.** C 2748 / TS 0816

Pit OS 7951

4

1 W Drag. 37 (TRI SA B)

Part of freeze (heavily worn) with hunting scene in free-style with running small deer to the right Fölzer 659 with vegetal motif Fölzer 794.

**Maiiaaus?**

AD 165/170-190 (Huld-Zetsche 1993, 43-44) or little later? (Brulet *et al.* (réd.) 2010, 195: AD 160/170-190/200; according to NOTS, vol. 5, 210-211, Maiiaaus is dated AD 170-240)

Trier

**DS52.** C 3229 / TS 1453

Road level OS 8937

5

1 W Drag. 37 (TRI SA B)

Ovolo Oelmann (1914) Taf. VIII: 11 and part of freeze with head of panther or lion to the right.

**Maiiaaus or related potter**

AD 165/170-190 (Huld-Zetsche 1993, 43-44) or little later? (Brulet *et al.* (réd.) 2010, 195: AD 160/170-190/200; according to NOTS, vol. 5, 210-211, Maiiaaus is dated AD 170-240)

Trier

**DS53.** C 1609 / TS 0745

Level OS 80963

4

1 W Drag. 37 (TRI SA B)

Ovolo with central tongue, two narrow running staffs and bent dart to the right: ovolo Oelmann (1914) Taf. VIII: 23?

**?Maiiaaus or related potter**

AD 165/170-190 (Huld-Zetsche 1993, 43-44) or little later? (Brulet *et al.* (réd.) 2010, 195: AD 160/170-190/200; according to NOTS, vol. 5, 210-211, Maiiaaus is dated AD 170-240)

Trier

**DS54.** C 2360 / TS 0410

Mixed level OS 70924

3/4

2 W Drag. 37

Broad ovolo Fölzer 954? / Gard R19? and part of freeze with smooth composite double medallions Fölzer 837 and large composite medallion with outer coggled and inner smooth medallion; panel decoration divided by vertical beaded row. Comparable compositions at Niederbieber with Maiiaaus and Afer-group (see Oelmann 1914, Taf. 8, 7-8); combination of Fölzer 837 medallions with

large composite medallion (or arcade?) at Butzbach: Müller 1968, Taf. 38: 1011.

**Maiiaaus, Afer** (=Afer iii (NOTS, vol. 1, 95-96: AD 190-240) or **related potter / Art der Ware mit Eierstab Fölzer 944**

AD 165-250

Trier

**DS55.** C 2775 / TS 0834

Fire layer OS 70045

4

1 W Drag. 37 (TRI SA C)

Ovolo without staff or tongue Huld-Zetsche E15 or Gard R26-27.

**Censor-Dexter**

c. AD 160-190 (Bird 1986, 143) / AD 180-240 (according to NOTS, vol. 2, 342: Censor ii: AD 180-220; according to NOTS, vol. 3, 270-272: Dexter ii: AD 190-240)

Trier

**DS56.** C 0164 / TS 0074

Pit OS 70977

2

1 W Drag. 37 (heavily burnt after breaking)

Part of freeze with smooth festoons with loose pearls (Fölzer 809) inhabited with chair Fölzer 795 – Gard O43, to the right deer running to the left Fölzer 626. Identical composition at Holzhausen: Pferdehirt 1976, Taf. 5: A131, see also A124 (Censor), A132. Same composition of festoon with chair motif, combined with ovolo Gard R2, at Andernach: Fölzer 1913, Taf. XV, 9 (Dexter).

**Censor-Dexter group**

?AD 180-240 (c. AD 160-190 (Bird 1986, 143) / AD 180-240 (according to NOTS, vol. 2, 342: Censor ii: AD 180-220; according to NOTS, vol. 3, 270-272: Dexter ii: AD 190-240))

Trier

**DS57.** C 2702 / TS 0769

Layer OS 80390

4

1 W Drag. 37 (heavily burnt after breaking)

Ovolo Gard R2 / Fölzer 945 with related fine pearl row Gard V66 / and part of freeze with smooth festoons with loose pearls (Fölzer 809) inhabited with mussle Fölzer 706 and (start of) chair Fölzer 795 – Gard O43. Identical composition at Arentsburg: van Diepen and Nieumeijer 2011, 211: Abb. 24, D158; also comparable to Fig. 24: D163. Decoration is related to DS52 (but clearly different vessel): identical composition with combination of all elements at Holzhausen: Pferdehirt 1976, Taf. 5: A131, see also A124 (Censor), A132. Comparable composition with same ovolo and festoon but with other motif within festoon at the

civil settlement of Oudenburg: Creus 1975, 24: Afb. 10, 86.

**Censor-Dexter group**

?AD 180-240 (c. AD 160-190 (Bird 1986, 143) / AD 180-240 (according to NOTS, vol. 2, 342: Censor ii: AD 180-220; according to NOTS, vol. 3, 270-272: Dexter ii: AD 190-240))

Trier

**DS58.** C 0154 / TS 0085b

Level, section through different features OS 70975 2

1 W Drag. 37 (TRI SA B)

Part of freeze with alternation of toothed and smooth medallions containing undefined figure types (in the left medallion: undefined animal to the right), with in between running hare Fölzer 659 and vegetal ornament Fölzer 794, flanked by two rosettes Fölzer 851. Combination of medallions with in between vegetal ornament Fölzer 794 at Arentsburg: Holwerda 1923, Pl. L: Afb. 84, 7.

**Censor-Dexter group**

?AD 180-240 (c. AD 160-190 (Bird 1986, 143) / AD 180-240 (according to NOTS, vol. 2, 342: Censor ii: AD 180-220; according to NOTS, vol. 3, 270-272: Dexter ii: AD 190-240))

Trier

**DS59.** C 1138 / TS 0982

Fire layer OS 7957/7971

4

1 W Drag. 37 (slightly burnt)

Ovolo Gard R2 and part of freeze (slightly burnt) with broad-beaded arcade.

**Censor-Dexter group**

?AD 180-240 (c. AD 160-190 (Bird 1986, 143) / AD 180-240 (according to NOTS, vol. 2, 342: Censor ii: AD 180-220; according to NOTS, vol. 3, 270-272: Dexter ii: AD 190-240))

Trier

**DS60.** C 5280 / TS 3803

Mixed level OS 30915

1>4

1 W Drag. 37

Ovolo Fölzer 945 or 946 and part of vegetal motif (bifid leaf) (burnt to black).

**Group of Censor-Dexter**

?AD 180-240 (c. AD 160-190 (Bird 1986, 143) / AD 180-240 (according to NOTS, vol. 2, 342: Censor ii: AD 180-220; according to NOTS, vol. 3, 270-272: Dexter ii: AD 190-240))

Trier

**DS61.** C 3013 / TS 1237

Mixed level OS 7918

4+5

1 W Drag. 37

Part of the lower freeze bordered by a row of astragals Huld-Zetsche lying column O86 and rosette Fölzer 892 / Huld-Zetsche O 99 on top of transition between two astragals. Same combination at Butzbach: Müller 1968, Taf. 49: 1373-1374.

**Censor, Maiiaaus or 'Art der Ware mit Eierstab Fölzer 941'**

AD 165-240

Trier

**DS62.** C 0349 / TS 0016a

Construction slot OS 11267

1

1 W Drag. 37

Ovolo Fölzer Taf. 10, 59 / Oelmann (1914) Taf. VIII, 11 and part of free-style freeze with ribbed, pointed leaf Fölzer 762, lion to the left Fölzer 585, bear to the left Oelmann (1914) Taf. VIII, 12. This combination of lion and leaf appears also at Arentsburg (Holwerda 1923, Pl. L, 25; van Diepen and Niemeijer 2011, Abb. 22, D139), at Zwammerdam (Haalebos 1977, Taf. 49, 345; Taf. 50, 360), at Nijmegen (Kalee 1973, Abb. 9, 37) and at Aardenburg (de Visser 2001: foto 84-85). Together with identical ovolo: at Niederbieber (Oelmann 1914, Taf. VIII: 11) and at Holzhausen (Pferdehirt 1971, Taf. 6: A144). The same ovolo appears together with identical leaf at Nijmegen (Kalee 1973, Abb. 8, 31).

**Comitalis of Trier**

AD 170-240 (Kortüm and Mees 1998, 162; NOTS, vol. 3, 101)

Trier

**DS63.** C 1428 / TS 0016b

Drainage gully OS 70920

2

1 W Drag. 37

Ovolo Fölzer Taf. 10, 59 / Oelmann (1914) Taf. VIII, 11 and part of free-style freeze with dolphin to the left Fölzer 692. Cf. DS63. At Kortrijk a wall sherd shows the composition of identical ovolo, dolphin and lion (cf. DS62) (Deschietter, unpublished material). The rib and groove delimiting the top of the freeze and the thickness of the wall show that this body fragment represents another individual than DS62. However, it is possibly that they were made from the same or a very similar mould.

**Comitalis of Trier**

AD 170-240 (Kortüm and Mees 1998, 162; NOTS, vol. 3, 101)

Trier

**DS64.** OS 4923. C 010 / TS 1764b

Construction pit of large water-basin OS 4923

5

1 W Drag. 37 (TRI SA A)  
Lower part of freeze with jumping panther to the left Fölzer 594, a leaf Fölzer 776 and an incomplete intradecorative stamp (S 161).

**Comitialis of Trier**

AD 170-240 (Kortüm and Mees 1998, 162; NOTS, vol. 3, 101)

Trier

**DS65.** C 2633a / TS 0686a

Hearth OS 7915 (level II)

4

1 R and 2 W Drag. 37 (rim diam.: 288; EVE: 12)

Ovolo Fölzer 941 underneath broad strip.

**?Comitialis of Trier**

AD 170-240 (Kortüm and Mees 1998, 162; NOTS, vol. 3, 101)

Trier

**DS66.** C 5277 / TS 3800

Earthen rampart mixed level OS 30915

1>4

1 W Drag. 37

Ovolo Fölzer 941 (because of the overlapping ovolos the torted staff is disappearing) and upper part of freeze with deer running to the left Fölzer 636 and discoid motif (medallion Fölzer 557?).

**Maiiaaus, Comitialis** or related potter?

AD 165-240

Trier

**DS67.** C 1135 / TS 0979a

Fire layer 7957/7971

4

1 R Drag. 37 (rim diam.: not definable; EVE: 2)

Ovolo Fölzer 941 / Gard R20 and part of freeze with toothed (empty) medallion Gard K 27, cf. Huld-Zetsche K 20b. Same combination of motifs at Zwammerdam (Haalebos 1977, Taf. 55, 428; Taf. 74, 693) and London (Bird 1986, 160: 2.74).

**Afer** (=Afer iii (NOTS, vol. 1, 95-96))

AD 190-240 (NOTS, vol. 1, 96)

Trier

**DS68.** OS 4923. C x015 / TS 2147

Construction pit large water-basin OS 4923

5

1 R Drag. 37 (rim diameter: 168; EVE: 6) (TRI SA A)

Large ovolo Gard R20.

**Afer** (=Afer iii (NOTS, vol. 1, 95-96))

AD 190-240 (NOTS, vol. 1, 96)

Trier

**DS69.** C 3274a-b-C 2611 / TS 1498-TS 0664

Pit OS 1919 (4) - level OS 8936 (5) - mixed level OS 8907 (5+post)

4

9 W Drag. 37

Ovolo Fölzer 953 and part of freeze (burnt to black) with crossing toothed medallions Fölzer 825 above row of shells (shell motif Fölzer 707). Comparable composition with beaded arcades and shell motif found in London (Bird 1986, 160: 2.78); similar arrangements shown by Gard 1937, Taf. 14: 9, 14.

**Afer** (=Afer iii (NOTS, vol. 1, 95-96))

AD 190-240 (NOTS, vol. 1, 96)

Trier

**DS70.** OS 2562. C 294 / TS 1750

Construction pit of double well OS 2562

5

1 W Drag. 37

Part of freeze intersected by columns (Fölzer 875? (blurred)) with probably arcades, with in between Diana with dog to the right Oswald 105 / Fölzer 478. This decoration has also been found at the Oudenburg civil settlement (Creus 1975, 22-23: Afb. 9, 65) and at Brugge (Thoen 1978, 158: fig. 53, 2). Same composition at Zwammerdam: Haalebos 1977, Taf. 74, 688. Same combination of Diana with columns shown by Fölzer 1913, Taf. XVIII, 6.

**Afer-Marinus group**

AD 190-240

Trier

**DS71.** OS 2562. C 058 / TS 1653

Secondary filling in of inner well of double structure OS 2562 after abandonment.

End 5

1 W Drag. 37

Square ovolo Gard R14. This ovolo was used by Atilus-Pussosus and Amator and by other potters of probable 3rd century date (Dickinson *et al.* 2014, 273: 101).

**Atilus-Pussosus, Amator** or related potter

AD 200-260

Trier

**DS72.** C 2295 / TS 0336

Level OS 80991

3

1 W Drag. 37

Fragment of freeze just underneath ovolo. Ovolo delineated by smooth line with part of circular motif or ring which connected row of beads intersecting a panel decoration, cf. Butzbach: Müller 1968, Taf. 45, 1282 and 1286; Taf. 46, 1287.

**Atilus-Pussosus**

AD 220-260? (NOTS, vol. 7, 289)

Trier

**DS73.** C 0965 / TS 0164

Pit OS 80925

3



1 W Drag. 37

Ovolo with small impression on the tongue Fölzer 953 / Gard R18 (found on a mould) and part of freeze with running hind to the right Fölzer 663 / Gard T75, within a toothed medallion Fölzer 825. Similar composition found in the Oudenburg *vicus*: Creus 1975, 24: Afb. 10, 79.

**Dubitatus-Dubitus** (=Dubitatus ii (NOTS, vol. 3, 336-339)  
AD 200-260 (NOTS, vol. 3, 339)

Trier

**DS74.** C 2415 / TS 0465

Level OS 8981

3+4

1 W Drag. 37

Part of freeze with back legs of running animal to the left within toothed medallion. Similar decorations were used among the Trier late Antonine potters like Dubitatus-Dubitus and the Afer-Marinus group.

**Afer-Marinus, Dubitatus-Dubitus** or related potter  
AD 190-260

Trier

**DS75.** C 3369a / TS 1593a

Level OS 8914

5

1 W Drag. 37 (TRI SA B)

Ovolo without staff Fölzer 953/954 with underneath wavy line, slightly burnt.

**Afer, Dubitatus-Dubitus** or **Paternianus**  
AD 190-260

Trier

**DS76.** C 3218 / TS 1442

Level OS 4907

5

1 W Drag. 37 (TRI SA B)

Part of freeze with large rosette Fölzer 845 / Gard V91 with vegetal motifs around?: cf. Zwammerdam: Haalebos 1977, Taf. 75, 714-715; Arentsburg: van Diepen and Niemeijer 2011, 214: Abb. 27, D202.

**Primanus** (=Primanus v (NOTS, vol. 7, 201)  
AD 230-275? (NOTS, vol. 7, 201)

Trier

**DS77.** OS 4923. C009 / TS 1763b

Construction pit of large water-basin OS 4923

5

1 W Drag. 37

Part of free-style freeze with rosette (no exact identification found), back legs of animal (?) to the left and back leg of gladiator with whip Oswald (1936) 1121 (?) but slightly larger (see Fölzer

491); part of the base line of the freeze is still visible.

No parallel found

? AD 200-270

Trier

**DS78.** C 1488 / TS 0998

Level OS 7947

4

1 W Drag. 37

Part of freeze (burnt) with male figure Fölzer 560 and jumping hare.

Too small for potter identification

? AD 200-270

Trier

**DS79.** C 2192b / TS 0196

Level OS 1924

3

1 W Drag. 37

Part of freeze divided by small column (?) and to the right back part of undefined motif.

Too small for potter identification

? AD 200-270

Trier

**DS80.** OS 4980 C.025 / TS 1112

Large waste-pit OS 4980

4

1 W Drag. 37

Small part of freeze with ovolo with staff to the left and large triangular leaf Fölzer 776?

Too small for potter identification

? AD 200-270

Trier

**DS81.** OS 4980 C.024 / TS 1111

Large waste-pit OS 4980

4

Part of freeze with column and with double-leaf Fölzer 907.

Too small for potter identification

? AD 200-270

Trier

**DS82.** OS 4980 C.022 / TS 1109

Large waste-pit OS 4980

4

Part of freeze with bush? motif (abraded) and start of two other elements.

Too small for potter identification

? AD 200-270

Trier

**DS83.** C 2948 / TS 1173

Large waste-pit OS 4980

4

Part of freeze with remains of ovolo with staff and blocked pearls.  
Too abraded for identification.  
? AD 200-270

Trier  
**DS84.** OS 4980 C.034 / TS 1121  
Large waste-pit OS 4980  
4  
Lower part of freeze with panther Fölzer 594 and bird Fölzer 684.  
Too small for potter identification  
? AD 200-270

Trier  
**DS85.** C 2666b / TS 0720b  
Pit OS 7965  
4  
1 W Drag. 37  
Part of freeze (secondary burnt) with blurred motifs, possible standard to the right, but too small to identify.  
Too small for potter identification  
? AD 200-270

## **RHEINZABERN**

Rheinzabern  
**DS88.** C 5290 / TS 3813  
Earthen rampart, mixed level OS 30915  
1>4  
1 W Drag. 37  
Lower part of freeze delineated by double line and part of toothed medallion.  
**Reginus I** (=Reginus vi of Rheinzabern (NOTS, vol. 7, 349-359), **Cobnertus** (=Cobnertus iv of Rheinzabern (NOTS, vol. 3, 66-68) or **Ianu(s) I?** (=Ianus ii/Ianuarius (NOTS, vol. 4, 248-251)  
AD 150/160-190/200 (Kortüm and Mees 1998, 162) / 155-180 (Mees 2002, 324, 325, 328; Reginus I, NOTS, vol. 7, 357: AD 155-180; Cobnertus, NOTS, vol. 3, 68: AD 155-180; Ianu I, NOTS, vol. 4, 250: AD 155-180)

Rheinzabern  
**DS89.** C 0590-C 2750 / TS 0187-TS 0818  
Level OS 70908 (3) – level OS 70909 (3) - pit OS 7044.IV (4) (cross joining sherds)  
3  
Drag. 37: 4 W and 1 B fitting, 1 W not fitting  
Ovolo Ri-Fi E1 and freeze with panel decoration in which the panels are divided by tripods (Ri-Fi O11), crown by a bird (Ri-Fi T258) (cf. Ricken-Thomas, Taf. 72: 1), with bifold leaf freeze Ri-Fi R33 on the base line; unclear motifs (masks?) within toothed medallions Ri-Fi K35 and panther to the right Ri-Fi

Trier  
**DS86.** C 2769 / TS 0836  
Pit OS 8975/80913  
4  
1 W Drag. 37 (TRI SA B)  
Heavily abraded freeze (slightly burnt) with beaded festoon (see Butzbach: Müller 1968, Taf. 33, 892-893) and unclear vertical linear motif.  
Too abraded to specify  
? AD 200-270

Trier  
**DS87.** C 2502 / TS 0552  
Level OS 7987  
4  
1 W Drag. 37  
Part of freeze with fragment of double-lined medallion with animal to the right; too little to identify.  
No potter identification possible  
? AD 200-270

T46. Same style of composition as Ricken-Thomas, Taf. 72, 1.  
**Arvernicus-Lutaeus** (=Arvernicus iii/Lutaeus of Rheinzabern (NOTS, vol. 1, 269; vol. 5, 146-148) AD 160-185/190 (NOTS, vol. 1, 269; vol. 5, 146-148)

Rheinzabern  
**DS90.** OS 22926. B 019 / TS 1048  
Secondary filling of well OS 22926  
4  
1 W Drag. 37  
Base fragment of freeze with tripod Ri-Fi O11 as panel intersection, tail of panther to the right Ri-Fi T46 and small fragment of toothed medallion; base line consisting of bifid leafs Ri-Fi R33.  
**Arvernicus-Lutaeus** (=Arvernicus iii/Lutaeus of Rheinzabern (NOTS, vol. 1, 269; vol. 5, 146-148) AD 160-185/190 (NOTS, vol. 1, 269; vol. 5, 146-148)

Rheinzabern  
**DS91.** C 2207 / TS 0212  
Pit OS 1900  
3  
4 W Drag. 37, fitting  
Large ovolo Ri-Fi E8 and part of free-style freeze with running dog to the left Ri-Fi T133, followed by figure with coat or cape, running man to the left Ri-

Fi M171, followed by adorant (*Schutzflehender*) Ri-Fi M213. Comparable composition: Ricken-Thomas, Taf. 164, 13 and Taf. 165, 3.

**Lucanus II** (Ware mit Eierstab E8) = Lucanus vi of Rheinzabern (NOTS, vol. 5, 110-111)  
AD 160-200? (NOTS, vol. 5, 111)

Rheinzabern

**DS92.** OS 2562. C 143 / TS 1646  
Secondary filling of double well OS 2562  
5

1 W Drag. 37

Free-style freeze with to the left female figure carrying basket Ri-Fi M56 and to the right faun Ri-Fi M94a: cf. Ricken-Thomas Taf. 56, 11, but here female figure to the right and male figure to the left.

**Cerialis III** (= Style III of group Cerialis v of Rheinzabern (NOTS, vol. 2, 353-357))

AD 160/170-220/230 (Kortüm and Mees 1998, 162) / 160-180/200 (NOTS, vol. 2, 356; Mees 2002, 332)

Rheinzabern

**DS93.** OS 4923. Cx022 / TS 2154  
Primary filling large water-basin OS 4923  
5

1 W Drag. 37

Unidentifiable ovolo with base line and part of freeze with astragal Ri-Fi O196 on top of converging lines: cf. Ricken-Thomas, Taf. 50, 10-11 (Cerialis i); Ricken-Thomas, Taf. 64, 20 (Cerialis v).

**Cerialis I** or **Cerialis V** (= Style I or V of group Cerialis v of Rheinzabern (NOTS, vol. 2, 353-357))

AD 160/170-220/230 (Kortüm and Mees 1998, 162) / 160-180/200 (NOTS, vol. 2, 356; Mees 2002, 332)

Rheinzabern

**DS94.** C 2434 / TS 0484  
Layer OS 71899  
4

1 W (chip) Drag. 37

Square ovolo with a row of square beads underneath, with part of a festoon and an animal or vase to the right of the festoon.

Style of **Cerialis group** (= group Cerialis v of Rheinzabern (NOTS, vol. 2, 353-357))

AD 160/170-220/230 (Kortüm and Mees 1998, 162) / 160-180/200 (NOTS, vol. 2, 356; Mees 2002, 332)

Rheinzabern

**DS95.** C 2164 / TS 0130  
Level OS 22935  
2/3

1 W Drag. 37

Part of freeze with metopes with beaded arcade Ri-Fi KB95 enclosing undefined figure (broken off) and flanked by beaded row: cf. Ricken-Thomas, Taf. 173, 7.

**Verecundus II** = Verecundus vi of Rheinzabern (NOTS, vol. 9, 198-202)

AD 160-220? (Mees 2002, 346; NOTS, vol. 9, 201)

Rheinzabern

**DS96.** C 2726 / TS 0793  
Level OS 8950

4

1 W Drag. 37

Part of freeze with decorative motif Ri-Fi O214a and rosette with six petals Ri-Fi O34, trophy Ri-Fi O214 and two unidentifiable motifs (secondary burnt): cf. style of Atto (see Ricken-Thomas, Taf. 134, 1) or style of Reginus II (see Ricken-Thomas, Taf. 136, 5)

**Atto** (=Atto i of Rheinzabern (NOTS, vol. 1, 322-324)) or **Reginus II** (=Reginus xi of Rheinzabern (NOTS, vol. 7, 361-364))

AD 160-235 (Atto: AD 160-200 (NOTS, vol. 1, 324); Reginus II: AD 180-235 (NOTS, vol. 7, 364))

Rheinzabern

**DS97.** C 2436a / TS 0486  
Debris layer/shallow gully(?) OS 8943  
4

2 W Drag. 37, not fitting

Probably ovolo Ri-Fi E1 and fragment of freeze with pointed leaf Ri-Fi P47a.

**Cerialis I, IV, V, Comitialis I** or **Arvernicus-Lutaevus.**

AD 160-240 (group Cerialis v of Rheinzabern: AD 160-180/200 (NOTS, vol. 2, 356; Mees 2002, 332); Comitialis of Rheinzabern: AD 170-240 (Kortüm and Kees 1998, 162; NOTS, vol. 3, 101); Arvernicus-Lutaevus (=Arvernicus iii/Lutaevus of Rheinzabern: AD 160-185/190 (NOTS, vol. 1, 269; vol. 5, 146-148))

Rheinzabern

**DS98.** C 2666a / TS 0720a  
Pit OS 7965  
4

1 W Drag. 37

Ovolo Ri-Fi E1 and fragment of freeze with tree Ri-Fi P3 and toothed vertical line.

Combination of motifs used by Cerialis I, IV, V, Comitialis I or Arvernicus-Lutaevus.

**Cerialis I, IV, V, Comitialis I** or **Arvernicus-Lutaevus.**

AD 160-240

Rheinzabern

**DS99.** C 5281 / TS 3804

Earthen rampart, mixed level OS 30915

1>4

1 W Drag. 37

Part of ovolo, too small to identify, and part of freeze with fragment of human figure (?), probably cf. Ricken-Thomas, Taf. 27, 4, within a double smooth medallion.

**Firmus II** (=Firmus iv of Rheinzabern, NOTS, vol. 4, 59-64)

AD 165-220? (NOTS, vol. 4, 63)

Rheinzabern

**DS100.** OS 2562. C 141 / TS 1647

Secondary filling of double well OS 2562

5

1 W Drag. 37

Ovolo Ri-Fi E23 and part of freeze with leaf Ri-Fi P61 and fragment of beaded scroll decoration using a large beaded wavy line Ri-Fi KB95: cf. Ricken-Thomas, Taf. 36, 2-4, 9-11.

**B.F. Attoni** (=B.F. Attonus of Rheinzabern (NOTS, vol. 2, 1-2))

AD 170-220 (Mees 2002, 330; NOTS, vol. 2, 2)

Rheinzabern

**DS101.** C 0639-C 0641 / TS 0324

Level OS 70956

3

2 W Drag. 37, fitting

Part of freeze with playing Putto Ri-Fi M140 within double smooth medallion Ri-Fi K20 underneath bottom edge of ovolo. Same composition: see Ricken-Thomas, Taf. 92: 2.

**Comitalis IV** (Comitalis of Rheinzabern (NOTS, vol. 3, 95-102))

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS102.** C 3313 / TS 1537

Pit OS 10908/8924A

5

1 W Drag. 37

Lower part of freeze with double smooth medallion Ri-Fi K19 with archer to the right Ri-Fi M174 and probably candelabra to the right: cf. Ricken-Thomas, Taf. 98, 1 and 3; Taf. 89, 14.

**Comitalis V** (Comitalis of Rheinzabern; NOTS, vol. 3, 95-102)

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS103.** C 2629-C 2631 / TS 0682-TS 0684

Level OS 8955

4

Drag. 37: 3 R, 4 W, 1 B, all fitting (rim diam.: 174; EVE: 16)

Ovolo Ri-Fi E17 and part of freeze with decoration in so-called 'medallion style': smooth double medallion Ri-Fi K19 or 19a, large lioness to the left

Ri-Fi T29, smaller lion to the left Ri-Fi T54, lying panther to the right Ri-Fi T35 and intradecorative stamp (S 084) COMITII[ retrograde : Comitalis of Rheinzabern (NOTS vol. 3, 95: die 8a); cf. Ricken-Thomas, Taf. 97, 8-9.

**Comitalis V** (Comitalis of Rheinzabern; NOTS, vol. 3, 95-102)

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS104.** OS 4923. C 007 / TS 1761b

Construction pit large water-basin OS 4923

5

1 W Drag. 37

Part of freeze with panel decoration with five-pointed leaf with curved stem Ri-Fi P96a and part of a festoon: cf. Ricken-Thomas, Taf. 99, 6, 14-15.

**Comitalis V** (Comitalis of Rheinzabern; NOTS, vol. 3, 95-102)

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS105.** C 2208 / TS 0213

Pit OS 1900

3

2 R Drag. 37, fitting (rim diam.: 180 mm; EVE: 44)

Ovolo Ri-Fi E17 and running animals in free-style freeze: lion Ri-Fi T29 with to the left start of probably smooth medallion and to the right part of small bear Ri-Fi T54 (Comitalis V) or mask Ri-Fi M2 (Perpetuus), with underneath start of unidentifiable motif or figure. Composition comparable to Ricken-Thomas, Taf. 97: 6F, 7-10. The diagonal position of the animals is common for Comitalis V.

**Comitalis V** (Comitalis of Rheinzabern; NOTS, vol. 3, 95-102)

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS106.** C 2196 / TS 0202

Pit OS 71442

3

2 W Drag. 37, fitting

Ovolo Ri-Fi E17 with part of freeze with pointed leaf Ri-Fi P96 and smooth festoon Ri-Fi KB76 with astragalus Ri-Fi O196. Same combination at Ricken-Thomas, Taf. 99: 6. Comparable composition at the civil settlement of Oudenburg: Creus 1975, 27: Afb. 11, 100.

**Comitalis V** (Comitalis of Rheinzabern; NOTS, vol. 3, 95-102)

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS107.** C 3327 / TS 1551

Level OS 4912

5

Drag. 37: 1 R and 1 W fitting (rim diam.: 164; EVE: 15)

Probably ovolo Ri-Fi E23 with part of freeze with blurred animal (running hare or dog to the left?) within smooth festoon. Typical decoration for a potter like Comitalis V: see f. ex. Ricken-Thomas, Taf. 101, 2-6.

**?Comitalis V**

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS108.** C 2507 / TS 0559

Oven OS 7955

4

1 W Drag. 37

Part of freeze with lioness to the right Ri-Fi T35a within double smooth medallion Ri-Fi K19. Combination of motifs frequently used by Comitalis IV (see Ricken-Thomas Taf. 90, 6, Taf. 91, 7) and Comitalis V (see Ricken-Thomas Taf. 100, 10).

**Comitalis IV or V**

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS109.** C 3012 / TS 1236

Level OS 7918

4+5

1 W Drag. 37

Ovolo Ri-Fi E25 and free-style freeze with tree Ri-Fi P3; fragment heavily burnt. Comparable compositions shown by Comitalis IV (see Ricken-Thomas Taf. 95, 9 and 11) and Comitalis VI (see Ricken-Thomas, Taf. 106, 7-9: in this case the circle is Ri-Fi O142).

**Comitalis IV or Comitalis VI**

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS110.** C 2524 / TS 0576

Level OS 70907

4

1 W Drag. 37

Probably ovolo Ri-Fi E25 and part of freeze with running deer to the left Ri-Fi T94 in smooth festoon.

Style of **Comitalis IV** or related potters

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS111.** C 5282 / TS 3805

Earthen rampart, mixed level OS 30915

1>4

1 W Drag. 37

Part of freeze with small tree Ri-Fi P3 or variant (cf. Ricken-Thomas, Taf. 95: Comitalis IV). Motif used by several potters, like f. ex. Comitalis IV

**Comitalis IV** or related potters

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS112.** C 3080 / TS 1303

Level OS 8956

4+5

1 W Drag. 37

Part of elegant ovolo Ri-Fi E17 with narrow staff to the left and part of double smooth medallion Ri-Fi K19: cf. Ricken-Thomas, Taf. 100, 1, 10, 19, Taf. 101, 1-2. Style of Comitalis V or related potter.

**Comitalis V** or related potters

AD 170-240 (Mees 2002, 336; NOTS, vol. 3, 101)

Rheinzabern

**DS113.** C 3228 / TS

Road level OS 8937

5

1 W Drag. 37

Panel decoration with leaf motif Ri-Fi P145 at the end of a thin vertical beaded row in between two double smooth medallions. Comparable composition shown by Belsus ii (see Ricken-Thomas, Taf. 110, 14 and 20), Ware mit Eierstab E25/E26 (see Ricken-Thomas, Taf. 115, 9) and Attilus (see Ricken-Thomas, Taf. 180, 16F).

**Belsus II, Attilus or Ware mit Eierstab E25/E26**

AD 170-250 (Mees 2002, 337, 338, 348) (Belsus II (=Belsus of Rheinzabern (NOTS, vol. 2, 55-57)): AD 170-220; Attilus (=Attilus vi of Rheinzabern (NOTS, vol. 1, 314-315)): AD 180-250)

Rheinzabern

**DS114.** C 2833 / TS 0898

Level OS 80942

4

1 W Drag. 37

Ovolo Ri-Fi E7 and part of medallion-style freeze with alternation of rosettes: double smooth medallion Ri-Fi K19a and flower with six petals Ri-Fi O34(b): cf. see Ricken-Thomas, Taf. 174, 1, 2, 6.

Style of **Helenius** (=Helenius ii of Rheinzabern (NOTS, vol. 4, 230-231)

AD 180-200 (Mees 2002, 346; NOTS, vol. 4, 231)

Rheinzabern

**DS115.** C 1489 / TS 0999

Level OS 7947

4

1 W Drag. 37

Probably ovolo Ri-Fi E40 and fragment of freeze with part of discoid motif Ri-Fi O74; burnt to black. Probably **Attilus** (=Attilus vi of Rheinzabern (NOTS, vol. 1, 314-315)

AD 180-250 (NOTS, vol. 1, 315)

Rheinzabern

**DS116.** C 5265 / TS 3788

Level OS 7900C

1>5

1 W Drag. 37

Ovolo Ri-Fi E17 and part of freeze with smooth medallion, probably with small cross Ri-Fi K11, and decorative motif Ri-Fi O210: see Ricken-Thomas, Taf. 204, 13-28. Combination of ovolo and decorative motif used by Victorinus II: cf. Ricken-Thomas, Taf. 219, 9.

**Victorinus II** (=Victorinus ii of Rheinzabern (NOTS, vol. 9, 237-248)

AD 210-250 (Bird 1986, 144; Mees 2002, 354; NOTS, vol. 9, 246)

Rheinzabern

**DS117.** C 2520 / TS 0565

Level OS 7966

4

1 W Drag. 37

Part of freeze with striding Amor to the left Ri-Fi M110, within double medallion Ri-Fi K20: part of panel decoration divided by vertical beaded row Ri-Fi O261 with end motif Ri-Fi O11: Ricken-Thomas, Taf. 152, 9F.

**Iulius I** (=Iulius viii of Rheinzabern) (NOTS, vol. 4, 335-339)

AD 220-255 (NOTS, vol. 4, 339) / AD 190/200 – 250/260 (Kortüm and Mees 1998, 162)

Rheinzabern

**DS118.** C 0071-C 0201-C 2113 / TS 0049

Pit OS 82765 – pit OS 82763 - level OS 81902 (cross joining sherds)

2

Drag. 37: 4 R, 3 W and 1 B, all fitting (rim diam.: 165; EVE: 60)

Ovolo Ri-Fi E4 and part of freeze with running deer to the left Ri-Fi T106b, ornament Ri-Fi O169 and running dog to the left Ri-Fi T130b. Intradecorative stamp (S 108) JVLIVS retrograde: Iulius viii of Rheinzabern. The combination of motifs confirms the style of Iulius II-Iulianus I: cf. Ricken-Thomas, Taf. 214: 12F and 14F.

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339)

AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS119.** C 2747 / TS 0815

Pit OS 7951

4

1 R Drag. 37 (rim diam.: not definable; EVE: 1)

Partially blurred ovolo E23 and part of freeze with fragment of a small four-armed cross, probably Ri-Fi O53 and a double smooth medallion or arcade. Combination of this ovolo and these motifs is regularly seen in the work of Iulius II-Iulianus I: see f. ex. Ricken-Thomas, Taf. 207, 7, 8, 10, 11.

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339)  
AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS120.** C 0213 / TS 0078

Doubled construction slot OS 82843-82845

2

1 W Drag. 37

Blurred ovolo Ri-Fi E17 with part of free-style freeze with Hercules Oswald (1936) 758 / Ri-Fi M87 and remains of intradecorative stamp (S 143), letters abraded. Same combination of Hercules motif, identical ovolo and vertical stamp: see Ricken-Thomas, Taf. 215, 12.

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339)

AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS121.** C 2294 / TS 0335

Pit OS 80979

3

1 W Drag. 37

Ovolo Ri-Fi E17 and part of freeze with intradecorative stamp (S 144), letters abraded, vertically positioned in between two smooth medallions. Arrangement of vertical stamp in between two medallions: see Ricken-Thomas, Taf. 204: 6F, 27.

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339)

AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS122.** C 2361 / TS 0411

Level OS 70924

3+4

1 W Drag. 37

Ovolo Ri-Fi E17 and part of freeze with vertical beaded row, comparable with Ricken-Thomas Taf. 212, 15F (with intradecorative stamp of Iulius II-Iulianus I).

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339)

AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS123.** OS 4980. C 016 / TS 1103

Large waste-pit OS 4980

4

2 W Drag. 37, fitting

Blurred ovolo Ri-Fi E17 and part of freeze with free-style decoration with gladiator scene. The gladiator fighting to the left (type Ri-Fi M216a) (and repeated at the right of the fragment) and his opponent to the right (type Ri-Fi M227a) are well-known in the decorative repertoire used by the late

Rheinzabern group of potters, including the Iulius II-Iulianus I group; here probably Iulius II-Iulianus I: see Ricken-Thomas; Taf. 215, 11 and 15.

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339) AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS124.** OS 22926/23975. IVa 003 / TS 1088

Primary filling well OS 22926

4

1 W Drag. 37

Ovolo Ri-Fi E23 and upper part of freeze with leaf chalice or cup Ri-Fi P111 in between double smooth arcade. Same combination of leaf motif and arcade decoration: see Ricken-Thomas, Taf. 205: 10-11, Taf. 207: 20-21.

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339) AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS125.** C 1136 / TS 0980

Fire layer OS 7957/7971

4

1 W Drag. 37

Ovolo Ri-Fi E17 with part of freeze with bird to the right Ri-Fi T230 underneath beaded arcade Ri-Fi KB100 with ornament figure type Ri-Fi O210 and with above cross-motif Ri-Fi O53: see Ricken-Thomas Taf. 209, 14F.

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339) AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS126.** OS 22926.B 025 / TS 1054

Secondary filling of well OS 22926

4

1 W Drag. 37

Bottom part of ovolo and part of freeze with pillar ornament Ri-Fi O161 (*Stütze*) underneath double smooth arcade with same pillar motif at the base: typical arcade decoration. Similar composition in the work of Iulius II-Iulianus I: see Ricken-Thomas Taf. 209, 10.

**Iulius II-Iulianus I** (=Iulius viii-Iulianus iii of Rheinzabern (NOTS, vol. 4, 322-326, 335-339) AD 220-255 (NOTS vol. 4, 325/339)

Rheinzabern

**DS127.** C 1493 / TS 1002

Level OS 7947

4

1 W Drag. 37

Part of freeze, burnt to black, with vertical beaded rows Ri-Fi O256. Motif commonly used by Iulius II-Iulianus I (see Ricken-Thomas, Taf. 212, 13-15-

16-19; Bird 1986, 168-169: 2.116 and 2.117; Pferdehirt 1976, Taf. 3: A 43), Respectinus I and Victorinus II; cf. also Arentsburg: Holwerda 1923, Pl. LII: Afb. 86, 10.

**Iulius II-Iulianus I, Respectinus I or Victorinus II**

AD 210-260

Rheinzabern

**DS128.** C 0640 / TS 0325

Level OS 70956

3

1 W Drag. 37

Small fragment of lower freeze with tree Ri-Fi P2a situated on top of smooth base line of freeze. Motif used by several potters but this particular position was applied by Iulius II-Iulianus I (see Ricken-Thomas, Taf. 217: 19) and Respectinus I (Ricken-Thomas, Taf. 222: 5F).

**Iulius II-Iulianus I or Respectinus I** (=Respectinus of Rheinzabern (NOTS, vol. 7, 380-382)

AD 220-260 (Bird 1986, 144; Mees 2002, 352, 355; NOTS vol. 4, 355-359 + vol. 7, 380-383)

Rheinzabern

**DS129.** C 2326 / TS 0369

Level OS 70919

3+4

1 W Drag. 37

Part of freeze with arcade Ri-Fi KB139, with running dog to the left Ri-Fi T141b, with underneath probably start of cross-motif O53; to the left, end of intradecorative stamp (S 131) ]NVS retrograde (Respectinus).

**Respectinus (II)**

AD 220-260? (NOTS vol. 7, 380-383; see also Mees 2002, 356).

Rheinzabern

**DS130.** C 3126 / TS 1349

Level OS 80918

4+5

1 W Drag. 37

Ovolo Ri-Fi E40 and part of freeze with pointed leaf Ri-Fi P30(b?) and double beaded medallion Ri-Fi K54 or arcade Ri-Fi KB135.

**Primitivus I or III** (=Primitivus i of Rheinzabern (NOTS, vol. 7, 203-210))

AD 220-260? (Mees 2002, 350; NOTS, vol. 7, 209) / AD 190/200 – 250/260 (Kortüm and Mees 1998, 162)

Rheinzabern

**DS131.** C 2938 / TS 1163

Large waste-pit OS 4980

4



Drag. 37: 1 R and 1 W fitting (burnt to black after breaking) (rim diam.: 192 mm; EVE: 13)  
Ovolo Ri-Fi E41 underneath broad strip.

**Primitivus IV** (=Primitius i of Rheinzabern (NOTS, vol. 7, 203-210)

AD 220-260? (Mees 2002, 350; NOTS, vol. 7, 209) / AD 190/200 – 250/260 (Kortüm and Mees 1998, 162)

Rheinzabern

**DS132.** C 2547 / TS 0600

Pit OS 7934

4

1 W Drag. 37

Lower part of freeze with love couple Ri-Fi M69a and rosette Ri-Fi O34a: cf. Ricken-Thomas, Taf. 233, 4, Taf. 234, 4.

Style of **Victor II – Ianuco**

AD 220-260/270? (Victor II (=Victor v of Rheinzabern (NOTS, vol. 9, 232-236): AD 220-260?/270 (Kortüm and Mees 1998, 162); Ianuco (NOTS, vol. 4, 248): AD 240-260?)

Rheinzabern

**DS133.** C 2755 / TS 0823

Hearth OS 7927

4

1 W Drag. 37

Part of ovolo, probably Ri-Fi E22, used by Statutus II.

**Statutus (II)**

AD 230-260? (NOTS, vol. 8, 355)

Rheinzabern

**DS134.** C 2900 / TS 1034

Pit OS 7949

4

1 B Drag. 37

Bottom of freeze with oblique pearl row Ri-Fi O261 ending on base line of freeze, and small leaf motif Ri-Fi P144a: cf. Ricken-Thomas Taf. 236, 6.

**Perpetuus** (=Perpetus ii of Rheinzabern (NOTS, vol. 7, 133-136)

AD 230-275? (NOTS, vol. 7, 136)

Rheinzabern

**DS135.** C 2197-C 2198-C 2188 / TS 0202-TS 0203-TS 0183

Construction slot OS 23600 (OS 72410) (3) – clay layer OS 1925 (3) (cross joining sherds)

3

Drag. 37: 1 R + 1 W, not fitting (rim diam.: 228 mm; EVE: 8)

Ovolo Ri-Fi E40 and part of freeze with two-fold leaf motif Ri-Fi P145.

**Cerialis VI, Primitivus I or Primitivus III.**

AD 160-260

Rheinzabern

**DS136.** C 2315 / TS 0358b

Level OS 22955

3+4

1 W Drag. 37

Part of freeze with columnlike figure type Ri-Fi O124 with start of double smooth medallion. Motifs used by Atto (Ricken-Thomas, Taf. 134, 6), Marcellus II (Taf. 184, 4F and 7), Primitivus I (Taf. 188: 3F and 4), Primitivus IV (Taf. 199: 3 and 7; Taf. 200: 1) and Ware mit Zierglied O382, 383 (Taf. 227, 16 and 17).

**Atto, Marcellus II** (=Marcellus vi of Rheinzabern (NOTS, vol. 5, 273-274)), **Primitivus I, Primitivus IV** or **Ware mit Zierglied O382/383**  
AD 160-260

Rheinzabern

**DS137.** C 3346 / TS 1570

Level OS 7920

5

1 W Drag. 37

Ovolo Ri-Fi E17; used by several potters, like f. ex. Comitalis V (see f. ex. Ricken-Thomas, Taf. 101, 16), Iulius II-Iulianus I.

**Comitalis V, Iulius II-Iulianus I** or **related potter**

AD 170-255

Rheinzabern

**DS138.** OS 4923. C005 / TS 1759b

Construction pit large water-basin OS 4923

5

1 W Drag. 37

Ovolo Ri-Fi E17; used by several potters, like f. ex. Comitalis V (see f. ex. Ricken-Thomas, Taf. 101, 16), Iulius II-Iulianus I.

**Comitalis V, Iulius II-Iulianus I** or **related potter**

AD 170-260

Rheinzabern

**DS139.** C 1139 / TS 0983

Fire layer OS 7957/7971

4

1 W Drag. 37

Part of free-style freeze with kantharos Ri-Fi O24 and fragments of two unidentified motifs: cf. f. ex. Ricken-Thomas, Taf. 220, 19.

**Comitalis I, Iulius II-Iulianus I, Ware anschliessend an Iulius II- Iulianus I** or **Victorinus II.**

AD 170-260

Rheinzabern

**DS140.** C 2764 / TS 0831b

Layer OS 71838

4

1 W Drag. 37  
Ovolo Ri-Fi E17 and small part of freeze but no further identification possible; secondary burnt. Ovolo used by several potters, like Comitalis V, Julius II-Julianus I.  
**Comitalis V, Iulius II-Julianus I** or related potter  
AD 170-260

Rheinzabern  
**DS141.** C 2787 / TS 0853  
Pit OS 8980  
4

1 W Drag. 37  
Probably ovolo Ri-Fi E42; fragment secondary burnt partially.  
**Iulius I** (Iulius viii), **Lupus** (Lupus iv) or **Perpetuus** (Perpetus ii)  
AD 190-275 (Lupus iv: AD 190-225 (NOTS, vol. 5, 144-145); Iulius viii: AD 220-255 (NOTS, vol. 4, 335-339); Perpetus ii: AD 230-275? (NOTS, vol. 7, 133-136)

Rheinzabern  
**DS142.** C 2904 / TS 1038  
Pit OS 7949  
4

1 W Drag. 37  
Ovolo Ri-Fi E44 and part of the freeze with double smooth inhabited medallion Ri-Fi K20 with Amor to the left Ri-Fi M111: cf. Ricken-Thomas, Taf. 228, 2, Taf. 229, 11F.  
**?Ware B mit Zierglied O382/O383.**  
3rd century (Mees 2002, 356)

Rheinzabern  
**DS143.** OS 4923. C 027 / TS 1781  
Construction pit large water-basin OS 4923  
5  
1 W Drag. 37  
Probably ovolo Ri-Fi E23, used by several potters.  
AD 170-260

Rheinzabern  
**DS144.** OS 22926. B 018 / TS 1047  
Secondary filling of well OS 22926  
4  
1 W Drag. 37  
Probably ovolo Ri-Fi E23 and fragment of freeze with part of leaf motif. Ovolo used by several potters.  
AD 170-260

Rheinzabern  
**DS145.** C 2316 / TS 0359  
Level OS 1904  
3+4  
1 R Drag. 37 (rim diam.: 220; EVE: 6)

Probably ovolo E25, used by several potters.  
AD 170-260

Rheinzabern  
**DS146.** C 2183 / TS 0154  
Level OS 23963  
2/3  
1 W Drag. 37  
Ovolo Ri-Fi E26 and part of beaded arcade with running animal to the right. Ovolo used by several potters.  
AD 170-260

Rheinzabern  
**DS147.** C 2955 / TS 1180  
Large waste-pit OS 4980  
4  
1 W Drag. 37  
Not well-stamped, blurred ovolo with staff to the left and fragment of freeze with start of smooth medallion and to the right fragment of unidentified motif, too small to identify further.  
?

Rheinzabern  
**DS148.** C 2901 / TS 1035  
Pit OS 7949  
4  
Drag. 37: 1 R and 1 W fitting (rim diam.: 190; EVE: 7)  
Fragment of ovolo, not accurately identifiable; secondary burnt.  
?

Rheinzabern  
**DS149.** OS 22926. C 005 / TS 1079b  
Construction pit well OS 22926  
4  
1 W Drag. 37  
Base of freeze with kneeling man to the left Ri-Fi M263 above base line with bifold leafs Ri-Fi R34?  
Too small to identify further  
?

Rheinzabern  
**DS150.** C 3328 / 1552  
Level OS 4912  
5  
1 W Drag. 37  
Lower part of freeze with standing rabbit or hare, probably panel decoration with beaded lines, on the left part of unidentified motif.  
Too small to identify further  
?

Rheinzabern  
**DS151.** C 2212 / TS 0217  
Pit OS 1900

3  
1 W Drag. 37  
Small fragment of freeze with back half of running  
animal to the right.  
Too small to identify further  
?

Rheinzabern  
**DS152.** C 2678 / TS 0732

### **FABRIC UNDET.**

Fabric und (burnt to black)  
**DS153.** C 4943 / TS 3664  
Level OS 2951  
5  
1 W Drag. 30

Pit OS 1376  
4  
1 W Drag. 37  
Small part of lower freeze delineated by smooth  
line and with animal leg (back leg of animal to the  
left?), too small to identify.  
No potter identification possible  
?

Base of freeze with two-folded leaf with vertical  
beaded line departing from it on top; too little to  
identify.  
No potter identification possible  
?

## APPENDIX 11 - Non-samian fine wares at the south-west fort corner site (By R. P. Symonds and S. Vanhoutte)

### 1. Introduction to the assemblage

The fine wares found at Oudenburg constitute one of the most interesting assemblages of such pottery in northern Europe. It is an assemblage that tells the story of the site's evolving connections both to the Rhineland and to Britain, as well as illustrating quite clearly the changing roles of each of the major production centres that provided Oudenburg's supply of fine wares. It should be noted that among the major advantages offered by the material at Oudenburg are not simply the clear stratigraphic structure of the site, but also the fact that no significant fine ware pottery production centres were established nearby.

### 2. Quantification methodology and possibilities for quantitative comparison

The fine wares have been quantified by four methods: sherd count, MNI (minimum number of individuals), EVEs (estimated vessel equivalents) and weight in grammes. The catalogue of the representative and illustrated fragments can be found under Section 6. The fine ware assemblage consists of 1177 sherds, 296 MNI, 19.015 EVEs and 12,998 g. The relative merits and flaws of each of the quantification methods are presented by Symonds and Haynes (2007). Here, it has proved very useful to compare the different percentages furnished by each method. For example, while MNI is the now universally accepted method used in France, and EVEs are generally considered in Britain to be the most statistically valid method, tables 43, 45 and 46 show that both of these methods have a tendency to ignore small quantities of pottery. These two methods alone would not have recorded the presence of the following fabrics: Colchester colour-coated ware, Hadham black ware, Oxfordshire colour-coated ware, Argonne colour-coated ware, Central-Gaulish black metallic ware, La Madeleine black-slipped ware; a further five fabrics are present as MNI but not as EVEs. For the most part these fabrics occur in anecdotal numbers, but their presence attests to the wide range of contact enjoyed by this apparently remote outpost on the North Sea continental coast.

Comparing assemblages in late Roman sites is an inherently difficult task, and this chapter will not do more than indicate how that might be done. The principal inconvenience is that virtually all late Roman contexts are contaminated by residual elements that were initially deposited much earlier, and this phenomenon is unlikely to have occurred in a systematic, quantifiable manner. Similarly, with the exception of cemetery sites and some types of military occupation, it is often difficult to know the specific activities that resulted in a given deposit, and whether or not these were the same at different sites. Oudenburg is exceptional in offering relatively uncontaminated late Roman military deposits, but these conditions are generally not matched at the sites where we would most like to be able to make comparisons. There is an interesting comparative study to be made using the data available from the Saxon Shore forts of Brancaster (Andrews 1985) and Caister-on-Sea (Darling and Gurney 1993), from London (Symonds and Tomber 1994), and from the Butt Road cemetery site at Colchester (Symonds and Wade 1999), but the current study is not the place for such work. At all of these British sites one can observe a geographical bias that needs to be well understood before one can compare their assemblages with Oudenburg. The fine wares at Brancaster, for example, are heavily dominated by Nene Valley products (83%: see Andrews 1985, 85 and fig. 50), which is not surprising, given the locations of the fort and the production centre. At London, the late fine wares are also dominated by Nene Valley wares (45% by EVEs and weight), but there is more Hadham red ware (about 20%) than there is Oxfordshire ware (about 15%), again probably because Hadham is the closest of the three centres to London (figures derived from data prepared for Symonds and Tomber 1994).

Oudenburg thus provides an interesting window on the long-distance distribution of Romano-British fine wares, but we should not lose sight of the fact that it remains a continental site where the majority of the fine wares arrived not from Britain but from the Rhineland, mainly from Cologne and Trier.

form	type	date	sherds	% sherds	MNI	% MNI	EVEs	% EVEs	g	% g	
flagons	Miscellaneous or otherwise unidentifiable flagon	50-400	13	1.1%	5	1.7%		0.0%	299	2.3%	
	flagon Young C8	240-400	4	0.3%	2	0.7%	0.12	0.6%	63	0.5%	
flagons/beakers	flagon/beaker	50-400	15	1.3%	2	0.7%		0.0%	188	1.4%	
jars	Otherwise undistinguishable necked jar	50-400	1	0.1%	1	0.3%	0.04	0.2%	15	0.1%	
jars/beakers	Jar or beaker; enclosed vessel	50-400	2	0.2%		0.0%		0.0%	10	0.1%	
	Jar or bowl	50-400	2	0.2%	2	0.7%		0.0%	24	0.2%	
beakers	Miscellaneous or otherwise unidentifiable beaker	50-400	682	57.9%	119	40.2%	4.815	25.3%	5534	42.6%	
	Beaker with short everted rim	70-160	22	1.9%	14	4.7%	1.73	9.1%	537	4.1%	
	Tulip-shaped beaker	100-200	62	5.3%	26	8.8%	2.55	13.4%	856	6.6%	
	Tulip-shaped beaker with pedestal base *	150-250	2	0.2%	2	0.7%		0.0%	19	0.1%	
	Necked globular beaker	180-400	187	15.9%	43	14.5%	5.48	28.8%	1331	10.2%	
Pentice beaker	180-400	16	1.4%	6	2.0%	0.52	2.7%	127	1.0%		
bowls	Miscellaneous or otherwise unidentifiable bowl	40-400	15	1.3%	9	3.0%	0.23	1.2%	296	2.3%	
	Hemispherical bowl with bead rim, Young C55	240-400	2	0.2%	1	0.3%		0.0%	201	1.5%	
	Bead-rimmed bowl, Young C69	325-400	2	0.2%	2	0.7%	0.05	0.3%	97	0.7%	
	Double-bead-rimmed bowl, Young C73	270-400	1	0.1%	1	0.3%	0.07	0.4%	16	0.1%	
	Necked bowl with out-turned rim, Young C75	325-400	1	0.1%		0.0%		0.0%	10	0.1%	
	Wall-sided, bead-rimmed carinated bowl, Young C81	300-400	1	0.1%	1	0.3%	0.14	0.7%	78	0.6%	
	Bowl 4C81 with impressed decoration, Young C83	300-400	1	0.1%		0.0%		0.0%	28	0.2%	
	Bowl 4C81 with cordon, Young C84	350-400	1	0.1%	1	0.3%	0.09	0.5%	24	0.2%	
	Dragendorff 38 bowl	150-400	1	0.1%	1	0.3%		0.0%	44	0.3%	
	Black-burnished--type flanged bowl	250-400	29	2.5%	20	6.8%	1.04	5.5%	1131	8.7%	
	Bowls/dishes	Bowl/dish	50-400	16	1.4%	5	1.7%		0.0%	369	2.8%
	dishes	Miscellaneous or otherwise unidentifiable dish or plate	50-400	4	0.3%	1	0.3%	0.04	0.2%	109	0.8%
		Dragendorff 31 dish, slightly hooked rim, Young C44	270-350	1	0.1%	1	0.3%	0.04	0.2%	20	0.2%
Shallow bowl with out-turned rim, Young C49		240-400	1	0.1%	1	0.3%	0.08	0.4%	22	0.2%	
5C49 with white-painted decoration, Young C50		325-400	2	0.2%	2	0.7%	0.2	1.1%	80	0.6%	
Dish with simple rim		50-400	41	3.5%	11	3.7%	0.94	4.9%	814	6.3%	
cups	Miscellaneous or otherwise unidentifiable cup	50-400	2	0.2%	1	0.3%	0.08	0.4%	8	0.1%	
mortaria	Miscellaneous or otherwise unidentifiable mortarium	50-400	9	0.8%	7	2.4%	0.25	1.3%	196	1.5%	
	Dragendorff 45 mortarium, Young C97	240-400	4	0.3%	2	0.7%	0.13	0.7%	46	0.4%	
	Dragendorff 45 mortarium, painted decoration, Young C97	350-400	3	0.3%	1	0.3%	0.06	0.3%	43	0.3%	
	Mortarium with upright rim & angular flange, Young C100	300-400	6	0.5%	4	1.4%	0.3	1.6%	153	1.2%	
	Dragendorff 45 mortarium	150-300	1	0.1%	1	0.3%	0.02	0.1%	8	0.1%	
lids	Lid (usually post-70)	50-400	1	0.1%	1	0.3%		0.0%	28	0.2%	
closed vessels	Otherwise undistinguishable closed vessel	40-400	17	1.4%		0.0%		0.0%	135	1.0%	
unidentified	Unidentified form	40-400	7	0.6%		0.0%		0.0%	39	0.3%	
<b>TOTAL</b>			<b>1177</b>	<b>100.0%</b>	<b>296</b>	<b>100.0%</b>	<b>19.015</b>	<b>100.0%</b>	<b>12998</b>	<b>100.0%</b>	

Table 43: Quantification of the represented fine wares at the south-west corner site, according to form and type, based on sherd count, MNI, EVE and weight.

origin	description	date	code	sherds	% sherds	MNI	% MNI	EVEs	% EVEs	g	% g
African British	African red slipped ware	360-450	AFR RS	2	0.2%	1	0.3%	0.04	0.2%	52	0.4%
	Colchester colour-coated ware (1)	100-250	COL CC I	1	0.1%		0.0%		0.0%	2	0.0%
	Colchester colour-coated ware (2)	120-300	COL CC II	10	0.8%	4	1.4%	0.3	1.6%	100	0.8%
	Colchester fabric MR	250-400	COL MR	7	0.6%	2	0.7%		0.0%	79	0.6%
	Hadham black ware	250-400	HAD BW	3	0.3%		0.0%		0.0%	12	0.1%
	Hadham red ware	250-400	HAD RS	29	2.5%	11	3.7%	0.69	3.6%	406	3.1%
	Lower Nene Valley ware	150-400	LNV CC	98	8.3%	27	9.1%	1.19	6.3%	1221	9.4%
	New Forest colour-coated ware	250-400	NFO CC	37	3.1%	8	2.7%	1.28	6.7%	281	2.2%
	Oxfordshire black-slipped ware	240-400	OXF BS	7	0.6%	4	1.4%	0.13	0.7%	202	1.6%
	Oxfordshire colour-coated ware	240-400	OXF CC	1	0.1%		0.0%		0.0%	6	0.0%
	Oxfordshire red/brown colour-coated ware	240-400	OXF RS	99	8.4%	53	17.9%	2.51	13.2%	2607	20.1%
	Oxfordshire white-slipped ware	240-400	OXF WS	1	0.1%	1	0.3%		0.0%	82	0.6%
	Oxfordshire parchment ware	240-400	OXPA	1	0.1%	1	0.3%		0.0%	15	0.1%
	Pevensay red-slipped ware	300-400	PEV RS	1	0.1%	1	0.3%		0.0%	68	0.5%
Gaulish	Argonne colour-coated ware	120-250	ARG	15	1.3%		0.0%		0.0%	170	1.3%
	Argonne black-slipped ware	180-300	ARG BS	58	4.9%	10	3.4%	1.03	5.4%	282	2.2%
	Argonne red-slipped ware	180-300	ARG RS	5	0.4%	2	0.7%		0.0%	46	0.4%
	Central Gaulish black metallic ware	120-250	CGBL	1	0.1%		0.0%		0.0%	6	0.0%
	La Madeleine black-slipped ware	200-300	LM BS	2	0.2%		0.0%		0.0%	6	0.0%
German	Cologne colour-coated ware	100-250	KOL CC	280	23.8%	77	26.0%	4.22	22.2%	3760	28.9%
	Moselkeramik	180-400	MOS BS	300	25.5%	60	20.3%	5.98	31.4%	1486	11.4%
unattributed	late Trier black-coated ware	300-400	late Trier	186	15.8%	26	8.8%	1.39	7.3%	1831	14.1%
	unattributed black-slipped ware		BS	3	0.3%		0.0%		0.0%	11	0.1%
	unattributed glazed ware		GLAZ	1	0.1%		0.0%		0.0%	3	0.0%
	unattributed red-slipped ware		RS	4	0.3%		0.0%		0.0%	21	0.2%
	unattributed white colour-coated ware		WCC	1	0.1%		0.0%		0.0%	4	0.0%
	unattributed colour-coated ware		CC	24	2.0%	8	2.7%	0.255	1.3%	239	1.8%
<b>TOTAL</b>				<b>1177</b>	<b>100.0%</b>	<b>296</b>	<b>100.0%</b>	<b>19.015</b>	<b>100.0%</b>	<b>12998</b>	<b>100.0%</b>

Table 44: Quantification of represented fine wares according to production regions and fabric, based on sherd count, MNI, EVE and weight.

### 3. Distribution and chronology in relation to the stratified evidence

#### 3.1. The fine wares at level 1

(49 sherds, 12 MNI, 1.63 EVEs, 435 g; Plate CXXXVIII: 1-6)

The earliest fort level contains just 49 sherds, mostly Cologne colour-coated ware (31 sherds), but with some *Moselkeramik*, and one sherd of a probable beaker in La Madeleine black-slipped ware. Apart from the aforementioned sherd probably from La Madeleine, the level contains no Romano-British or Gaulish fine wares, and all of the fine wares present could have passed on river transport via the Rhine to Oudenburg. The confluence of Cologne ware and *Moselkeramik* suggests, despite the small quantities involved, a date after c. 180 AD.

For many years there has been a general assumption that the widely-exported Cologne colour-coated wares with white fabric are essentially a production of the 2nd century (cf. Vilvorder 2010, 335), whose role was largely overtaken by fine ware beakers from Trier in the 3rd century (cf. Symonds 1992, 47; Desbat and Vilvorder 2000, 178)<sup>69</sup>. The assemblages at Oudenburg confirm this general chronology, while adding some refinement to it. The assemblages at Oudenburg seem to confirm that *Moselkeramik*, at least the plain vessels, began to be widely distributed as early as the late 2nd century. Cologne ware was clearly still very much in circulation, and the two types would continue to circulate towards the same destinations until well into the 3rd century.

<sup>69</sup> Probably the best summary of the general dating of Cologne ware is given in Vilvorder 2010a, 335: "[...] production at Cologne workshops does not seem to have begun before about 80 AD. [...] The whole of the ceramic industry seems to have stopped around the beginning of the 3rd century, before beginning again a century later" (translation RPS). It should be noted that there is no evidence that the later wares made in the 4th century were distributed outside of the Rhineland. Trier *Moselkeramik* seems to have been widely exported from as early as the late 2nd century (cf. Tyers 1996b, 138 with references), most likely from c. AD 180 onwards (cf. Künzl 1997, 118-22). Vilvorder (2010b, 355; see also Desbat and Vilvorder 2000, 179) summarises the general chronology by saying that there are few good assemblages for the end of the 2nd and the first half of the 3rd century, but suggests white barbotine decoration may have begun at Trier around 255, and continued until c. AD 275, after which there was a marked decline in quality represented by late Trier ware.

The absence of Central-Gaulish fine wares at Oudenburg is interesting, since although the fine wares from Lezoux and other Gaulish sources were generally less systematically exported than Cologne ware or *Moselkeramik*, or than samian ware from Central Gaul, they do nevertheless appear in Britain, for example at Colchester (Symonds and Wade 1999, fig. 5.37, nos. 1-12) and, much more abundantly, at London (Richardson 1986, 115-118, nos. 1.97-1.114). But their absence at Oudenburg could in fact confirm Richardson's first proposal that the deposit of Central-Gaulish wares at St. Magnus House could belong to the period c. AD 170-180, rather than the later proposed date range of 'until c. AD 220' (Richardson 1986, 115). Alternatively, since there are no Romano-British fine wares at Oudenburg before fort level 2, this may instead be an indication that Oudenburg's supply of fine wares simply came exclusively from the Rhineland until the early 3rd century, or until after fine wares from Central Gaul had ceased to be widely circulated. It should also be noted, in passing, that at Oudenburg Central-Gaulish samian is overall the third most common identifiable mid-Roman type of samian present, and the predominant type seen in level 1, although it represents just nine out of a total of twenty-one individuals. There is, however, no concrete evidence that Central-Gaulish samian and fine wares were distributed together: they may have arrived at the quays at St. Magnus House in crates in the same ships, but they were packed in separate crates, and thereafter (the vessels that survived unloading) may also have travelled separately.

The Cologne wares in level 1 are all tulip-shaped beakers (form 3J, Hees 3, probably all with plain rims as Plate CXXXVIII: 3-4), with the exception of the base of a flat dish (Hees 17a / NB 40 / Höpken E1/E2, not illustrated). The beakers are plain, or with multiple bands of rouletting (or knife-trimming), and one small sherd (2g, not illustrated) has barbotine decoration; this may be an intrusive find, though. Lastly, it is worth noting that the *Moselkeramik* found in level 1 at Oudenburg includes only plain beakers with roulette bands, typified by Plate CXXXVIII: 5, a globular vessel with relatively short neck.

### 3.2. The fine wares at fort level 2

(76 sherds, 15 MNI, 1.05 EVEs, 1244 g; Plate CXXXVIII: 7-16)

At fort level 2, dated by the samian after AD 220, the Cologne colour-coated ware reaches its highest percentages, as much as 100% by EVEs, although only 72.4% by sherd-count (more than 90% by MNI and weight). These high percentages, coupled with the appearance of at least three Romano-British sherds, suggest that even if production at Cologne effectively stopped sometime during this period, it was apparently still engaged in mass production and distribution, almost until the end of its production. The Cologne vessels present in this level include plain-rimmed tulip-shaped beakers (3J, Hees 3, Plate CXXXVIII: 11-13), but also short-necked beakers with short everted rims (3E, NB 32b/c, Plate CXXXVIII: 8 and 10). These are accompanied by flat dishes (5J, Hees 17a/NB 40/Höpken E1/E2, Plate CXXXVIII: 14 and 15) that can look very much like Cologne versions of Pompeian-red ware dishes.

Although it remains the second most common fabric associated with fort level 2, there are fewer sherds of *Moselkeramik* in level 2 than in level 1 (just thirteen, down from seventeen). One sherd is illustrated (Plate CXXXVIII: 16), the wall of a beaker which probably represents the earliest white barbotine decoration at the site.

The three British sherds are, respectively, from the Nene Valley, Hadham and Oxfordshire, all of which are thought of as generally later production centres, not generally achieving wide distribution before c. AD 250. Also in fort level 2 is a single sherd identified as late Trier ware, generally not thought to have been produced before c. 300. All of these sherds are very small (except for the Hadham bowl base of 27 g, none weighs more than 8 g), and none were sufficiently large to illustrate. It is therefore not impossible that at least some of them are intrusive finds, or have been misidentified. As in level 1, in fort level 2 a single sherd probably of La Madeleine black-slipped ware was recorded, also of just 3 g, so not illustrated.



### 3.3. The fine wares at fort level 3

(93 sherds, 26 MNI, 2.35 EVEs, 779 g; Plate CXXXVIII: 17-26)

The fine ware spectrum in fort level 3 is very similar to that in fort level 2. Cologne colour-coated ware is again the most common fabric, although at not much more than 50% by most measures, it is nearly matched in quantity by *Moselkeramik*, with around 40%, except by weight, since Cologne ware vessels can frequently be a little heavier. Based on the samian and a coin of Gordianus III (AD 238-244), this fort level 3 is dated around the middle of the 3rd century.

Cologne ware beakers are somewhat more robust than the Trier vessels, the latter tending to break into quite small, light fragments, whose fabric and form are nonetheless often easy to identify. In this level all of the Cologne vessels seem to be beakers, either plain-rimmed tulip-shaped beakers with underslip barbotine decoration (Plate CXXXVIII: 19) or with rouletting (Plate CXXXVIII: 20), with short neck and short everted rim (Plate CXXXVIII: 18). No dishes were recorded in level 3.

The *Moselkeramik* in fort level 3 is represented mainly by necked globular beakers (NB 33, Symonds Trier form 1) such as Plate CXXXVIII: 17 and 22. These usually have single bands of rouletting at the shoulder, mid-body and at the join of the base with the body. There are also some sherds of motto beakers (probably belonging to Symonds 1992, Group 36) with white barbotine decoration and a motto or word painted in large letters just below the shoulder. In fort level 3, however, these vessels are only present as small fragments, with no more than a single letter visible. Plate CXXXVIII: 23 and 24 are two variations in the standard *Moselkeramik* form, the first with a long neck and small globular body, and the second with a narrow neck. This latter individual may simply be a small vessel (cf. Symonds 1992, Group 36, fig. 28), but the former seems unusual: there has been an assumption that vessels with long necks are a 'late' development, whether at Trier (for example, Symonds Group 65) or elsewhere. However, beaker Plate CXXXVIII: 23 has a much more globular body than the vessels in late Trier ware of Group 65, and occurring in a level dated to the mid-3rd century, it is in fact fairly late as far as *Moselkeramik* production is concerned.

Rather more worrying is Plate CXXXVIII: 26, a short-necked beaker apparently in late Trier ware. While the fabric of this vessel is happily compatible with that of late Trier ware, this form is not common among vessels of this fabric at Trier itself (although it is somewhat similar to Symonds fig. 50, no. 855). Late Trier ware or '*späte Schwarzfirnisware*' is generally thought to have begun production at least after c. AD 275, but more likely after c. AD 300 (cf. Desbat and Vilvorder 2000, 179). Another, perhaps more likely, possibility to be considered is that this vessel should be associated with Symonds Groups 27 and 30 (figs. 20 and 22), from Alsace and the Wetterau – having just the rim and shoulder, it is difficult to know the shape of the body.

Level 3 also contains five probable Romano-British sherds (none illustrated): a base fragment of a beaker of the New Forest, fragments from two probable beakers in Colchester colour-coated ware, one beaker in Oxfordshire black-slipped ware, and a body sherd of a bowl in Hadham red ware similar to Symonds and Wade 1999, fig 5.54 no. 84, but with poor quality rouletting. By the mid-3rd century, these wares were already beginning to circulate in Britain, so perhaps they indicate the beginning of contact with Oudenburg as well. This seems to be confirmed by the clear presence of Romano-British mortaria at this level.

### 3.4. The fine wares at fort level 4

(216 sherds, 46 MNI, 3.04 EVEs, 1680 g; Plate CXXXIX: 27 to 52)

This level, dated to c. AD 260 to the end of the 3rd century / c. 300 based on dendrochronological, numismatic and other ceramic evidence, shows a significant change in the fine ware spectrum. It is in this period that there is a sharp decline in the presence of Cologne colour-coated ware, together with a continuing rise in the quantity of *Moselkeramik* and fairly significant rises in Roman-British wares, late Trier wares and Argonne black-slipped ware.

The Cologne colour-coated wares make up around 25% of the fine wares in fort level 4 by all the measures, thus proportionately about half the amount seen in fort level 3. The forms are mainly beakers, including with short neck (Plate CXXXIX: 28), and tulip-shaped with cornice rim, and with underslip barbotine decoration (Plate CXXXIX: 29 and 30). No. 31 is a rare Cologne beaker with longer neck.

*Moselkeramik* is the most common fabric in fort level 4, with around 40% (an average of all measures). This seems to correspond with the period of greatest productivity and creativity at Trier, including decorated motto beakers such as Plate CXXXIX: 34-37. Probably the first two of these (34 and 35) belong to the small-sized model of the necked globular beaker (Symonds Group 36, fig. 28), while the latter two (36 and 37) are medium-sized (Symonds Group 36, fig. 29). Although these beakers were made with consistently high quality, they were also made with the same mass-produced repetitiveness that the latter potters achieved with the use of moulds. In the first half of the 2nd century Lezoux potters experimented with the use of moulds for beakers (cf. Symonds Group 3), but it was ultimately unsuccessful because moulded decorations only work well on the lower parts of the vessels, while the upper requires applied-moulded figures. At Trier applied moulded figures were used on only a few vessels found at Trier itself. Instead, the mass-produced vessels all use white barbotine scroll decorations, accompanying white painted lettering for the motto. Also present at Oudenburg are beakers with small and large vertical indentations such as Plate CXXXIX: 38 (Symonds Group 33), no. 39 (Symonds Group 35), and no. 41 (probably Symonds Group 37). One vessel, Plate CXXXIX: 43, represents a variant *Moselkeramik* form, a beaker with short neck and everted rim (Symonds Group 41).

It is in level 4 that Romano-British wares begin to appear at Oudenburg in notable quantities, reaching on average around 18% of the fine wares (up to nearly 30% by weight, which is easily explained by the relative heaviness of most late R-B fine wares compared to the lightness of *Moselkeramik*, for example. Nevertheless, it is clear that the supply of fine wares from Britain to Oudenburg became more than simply anecdotal in the latter half of the 3rd century, and its importance would continue to grow through the next century.

The most abundant Romano-British ware in fort level 4 is Lower Nene Valley colour-coated ware. In very general terms, it could be said that Oxfordshire red/brown colour-coated ware is a rather unrefined late version of samian ware, and, on a lesser scale, the same is true of Hadham red ware, although both of these productions also made their own distinctive forms not found in other late samian. Their focus was mostly on open forms such as bowls and dishes. At the Nene Valley, however, the model was not samian but dark coloured beakers, and so in the 2nd century the predominant form was the tulip-shaped cornice-rimmed beaker, which was subsequently replaced by the necked globular beaker. The first of these forms was copied with such skill that a limited programme of chemical analyses was carried out in the early 1980s to determine the origins of beakers found in Britain: the result was that perhaps more than had been expected were from Cologne, but the copies from the Nene Valley were very similar (Anderson *et al.* 1982; see also Howe *et al.* 1980, fig. 5, in which both forms are illustrated). The Nene Valley versions of tulip-shaped beakers do not seem to have reached Oudenburg, however, probably because the conversion to necked globular beakers had already occurred before Romano-British wares began to arrive in significant numbers, in other words before level 4 or c. AD 260. The neck globular beakers from the Nene Valley are clearly copies of Trier products, but generally they are not difficult to distinguish from the originals, because Nene Valley products usually have a white fabric, or in some cases a pinkish-cream fabric quite unlike that of *Moselkeramik*. They can be a little more difficult to distinguish from late Trier ware, which has a less fine reddish fabric, but it is usually much more consistently red than that of similar vessels from the Nene Valley.

Thus, in level 4, Plate CXXXIX: 45 to 48 are all Nene Valley necked globular beakers, the last of these quite similar to Howe *et al.* 1980, fig. 5, no. 50 (dated to the 3rd century). Plate CXXXIX: 49 is in Oxfordshire red/brown colour-coated ware, probably the base of a flanged bowl copying Dragendorff form 38. Plate CXXXIX: 27 (from level 3+4, but most likely to be attributed to fort level 4) and nos. 50 to 52 (from level 4) are the late Trier vessels illustrated here. No. 44 is the

only illustrated representative of Argonne black-slipped ware in level 4: a beaker of Chenet form 339a, a rare example of a beaker with both roughcasting and rouletting.

### 3.5. *The fine wares at fort level 5*

(248 sherds, 57 MNI, 4.55 Eves, 2343 g; Plate CXL: 53-82)

In level 5, based on the dendrochronological evidence (earliest felling date: AD 319-329) and the presence of late Argonne roller-stamped ware dated from c. AD 320 onwards, *Moselkeramik* remains the most common fabric, even though it almost certainly had ceased to be manufactured at Trier by the late 3rd century, and its numbers have declined significantly since level 4. Its high percentages (33.5% by sherd count, and 33.6% by EVEs) must be partly explained by the fact that the very thin walls can break into many fragments, but rim sherds can still be measured. Cologne wares, clearly residual, decline even more sharply in level 5, down to just 5.1% by EVEs, although around 14% by the other measures.

By contrast, Romano-British wares reach more than 45% by EVEs and weight, although only 30% by sherd count, undoubtedly owing to the general robustness of the Romano-British fabrics. Argonne wares now reach around 10% of the fine wares, while late Trier ware seems to be about the same by most measures, but there are no rims present, so no EVEs were recorded. One sherd of Pevensey ware (Plate CXL: 80; fabric confirmed by M. Lyne, pers. comm.) is associated with level 5 (where, chronologically, it undoubtedly belongs).

The forms in *Moselkeramik* are represented by Plate CXL: 55-57 and 61-66. These are all necked globular beakers (NB 33, Symonds Trier form 1) with the exception of no. 61, which is a short-necked beaker with everted rim (NB 32, Symonds Trier form 2, similar to no. 43). Nos. 56-57 and 62 all have white barbotine decoration; the last of these is to be a fairly large vessel, but without the usual motto, or painted inscription. The three illustrated Cologne colour-coated ware beakers (Plate CXL: 58-60) all have underslip barbotine decoration, probably all parts of hunt scenes. Although beakers are always the most common Cologne form, at least three plain dishes (Hees 17a / NB 40 / Höpken E1/E2) were also recorded in level 5. Argonne ware, represented here by Plate CXL: 53-54 and 67-69, also consists mainly of beakers, but in level 5 two probable flagons have been identified, including no. 69 with a three-lobed handle.

The Romano-British wares are composed mainly of Lower Nene Valley ware and Oxfordshire ware; New Forest ware reaches its highest recorded quantities (on average, about 7%, although higher by EVEs). Lower Nene Valley wares are represented by Plate CXL: 70-72, all beakers, the last of which with white painted decoration. Although clearly copying *Moselkeramik*, white decorations on Nene Valley beakers only rarely can be described as barbotine rather than paint, being rather more two-dimensional than the decorations on Trier vessels. The only illustrated New Forest vessel here is the (rimless) top of a flagon with the stump of a single handle (no. 73). The Oxfordshire wares (nos. 74-79) show that the range of vessels coming from this source was generally somewhat different from other colour-coated ware types: of the six illustrated vessels, none are beakers, two are direct imitation of samian forms (no. 74 is a Young C51 copy of a Dragendorff 38, while nos. 77 and 78 are Young C97 copies of Dragendorff 45); three are mortaria (nos. 77-79) and three are original Oxfordshire open forms (nos. 75-6: Young C73/84 bowls with stamped decoration; no. 79: a Young C100.2 mortarium). These are the latest dated vessels in the assemblage – mostly dated c. AD 300-400, although Young dates his form C84 to c. AD 350-400. The base of a probably Pevensey ware bowl (no. 80) and the base and most of the body of a late Trier ware beaker are undoubtedly contemporary with the Oxfordshire and other Romano-British wares present.

### 3.6. *The fine wares from the post-Roman and unstratified levels*

(495 sherds, 140 MNI, 6.4 EVEs, 6517 g; Plate CXLI-CXLII: 83-129)

The last group of contexts provides us with roughly 40% of all the fine ware fragments recorded, obviously all recovered in redeposited contexts. For the most part the fine wares present are the latest of their types. In this group both Cologne colour-coated ware and *Moselkeramik* decline to their lowest percentages, whereas both late Trier ware and Romano-British wares in general reach their highest levels.

As a result, just one *Moselkeramik* beaker (Plate CXLI: 83) and one Cologne colour-coated ware plain-rimmed dish (Plate CXLI: 90) are illustrated. Hadham red ware has been identified as early as fort level 2 (one sherd), but it never reaches more than 3.7% of the fine wares by any quantification method. Among the illustrations it is represented just by one vessel, a short-necked beaker with everted rim (no. 84). However, after Oxfordshire red-brown colour-coated ware, which occurs at Oudenburg in no fewer than ten different general forms, Hadham ware, also including both imitations of samian ware and its own original forms, occurs in no less than nine different forms (Table 46).

In the entire assemblage just two sherds of African Red Slip ware have been identified. One of these is the rim of a dish (no. 89), probably Hayes form 67-72, generally dated c. AD 360-470. Among the non-samian fine wares as a whole, these are the only sherds that might reflect the occupation at Oudenburg beyond the end of the 4th century, but neither sherd can be dated more precisely.

Another type that is surprisingly rare at Oudenburg is Central-Gaulish Black metallic ware, mentioned above in the discussion of level 1. The only recorded sherd is recovered from the post-Roman level and represents the upper wall of a beaker with underslip barbotine dots (no. 91). This individual seems very likely to belong to the early 3rd century at the latest.

Argonne ware is not as rare at Oudenburg as other Gaulish wares, since it accounts for around 5% of the assemblage by all measures, and more sherds were recorded in the post-Roman levels than earlier (for an overview of the attested Argonne ware types: Fig. 39). The percentages of Argonne ware were slightly higher however in level 5. Its only illustrated representatives here are no. 92, an Argonne black-slipped ware necked globular indented beaker, NB 33c, Symonds form 1 with large oval indentations and bands of rouletting at the join of neck and shoulder (cf. Symonds 1992, fig. 18, Group 25, nos. 393 and 397), and no. 93, the mid-body of a beaker or flagon in Argonne ware with white-painted decoration, similar to Chenet 1941, Pl. 17, types 334-335.

Like Argonne ware, New Forest wares seem to peak in fort level 5, and decline somewhat thereafter. Both of the illustrated examples in the post-Roman levels are globular necked beakers with what is known as excised or cut-glass technique decorations (nos. 97 and 98). This seems a fairly rare decorative style in New Forest wares, while it is much more common on vessels from Central Gaul (cf. Symonds 1992)<sup>70</sup>, for example at Domecy-sur-Cure<sup>71</sup> and at Jaulges-Villiers-Vineux<sup>72</sup>. Generally this is a decorative style that developed between the second half of the 2nd century and the end of the 3rd century; it is rare in the 4th century (cf. Fulford 1975, 30).

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<sup>70</sup> Symonds 1992, fig. 4, nos. 5, 59-64, 67-70; fig. 5, nos. 75-81, 84-5, 87-94; fig. 6, 99-100, 104, 106-9; fig. 8, 148-9, 156.

<sup>71</sup> Symonds 1992, fig. 14, no. 288, fig. 17, no. 371 and probably fig. 17, nos. 366 and 373 and fig. 18, nos. 378-9 and 381-6.

<sup>72</sup> Symonds 1992, fig. 14, no. 305, fig. 17, no. 353 and probably fig. 16, nos. 338, and 340-3.

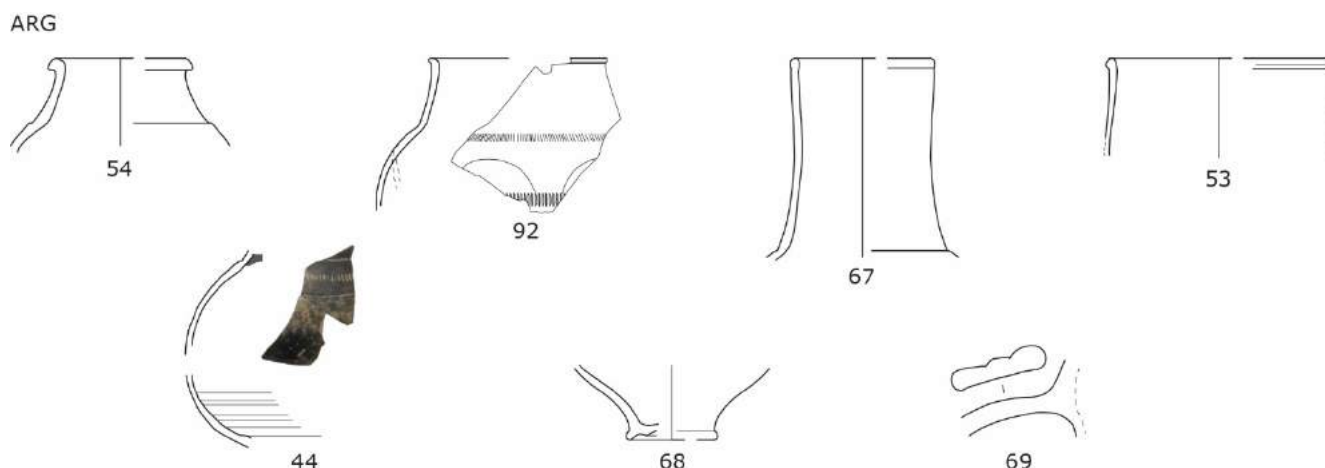


Fig 39: Overview of the attested Argonne fine ware productions.

Lower Nene Valley wares reach their highest numbers in the post-Roman and mixed levels: with around 11% by all measures, they are the third or fourth most common ware. Unlike Oxfordshire ware or Hadham ware, Nene Valley colour-coated products do not include significant numbers of forms imitating samian ware; the most common vessels are beakers in the tradition of *Moselkeramik*. Mostly these are beakers of the form NB 33, Symonds Trier form 1, but in the 4th century a variant of this form appears in the pentice beaker (HPM fig. 5, nos. 55-7), which seems to be a late version of the high-shouldered beaker first developed in Central Gaul, and then at Trier (Symonds Group 14, fig. 12, no. 251 and Group 46, fig. 37, nos. 677-680). An example of a pentice beaker in Colchester colour-coated was noted in fort level 4 (Plate CXXXIX: 32), an example was recorded in the post-Roman levels in Oxfordshire colour-coated ware (Young C23), along with two more in Colchester cc ware, but at least four examples were recorded in the same levels in Lower Nene Valley ware, including the illustrated rim, no. 94. There are also, however, other notable forms from the Nene Valley, in particular flanged bowls that seem to be an imitation of late flanged bowls in Black-Burnished ware or Alice Holt Farnham ware (see, for example, the juxtaposition of Symonds and Tomber 1994, fig. 14, nos. 148-54, including flanged bowls in different Romano-British fabrics). Here the illustrated example of the form is no. 95. There is also the base of a small vessel, presumably a lamp, in Lower Nene Valley ware (no. 96).

Oxfordshire wares are the most common ware type in the post-Roman levels, except by sherd count, where they are outnumbered by *Moselkeramik*, the latter type being broken into many small sherds while the former is obviously a more robust fabric. Oxfordshire ware also appears in a wider variety of forms than any other type (Table 46), hence the considerable number of illustrations here (Plate CXLI-II: 85-7 and 99-119). As observed in fort level 5, the Oxfordshire wares include several forms that are copies of samian ware forms, such as the collared bowl Young C52/ Dragendorff 38 (nos. 87, 100 and 108-111), the dish Young C44-5/ Dragendorff 18/31 (no. 112) and the mortarium Young 98/ Dragendorff 45 (no. 116) (see also Fig. 47-48). Also Young notes that the C49/50 dish/bowl form is 'probably derived from Dragendorff 36 and Curle 15' (Young 1977, 158): here the form is represented by nos. 113-115. More original forms include both narrow-necked and broad-mouthed flagons (Young C8 and C13: nos. 85, 101 and 102); open carinated bowls (Young C69.2: No. 105; Young C83/84: Nos. 106-7; Young C81: No. 86); open rounded bowls (Young C55: No. 104); beakers (notably, an example with rouletting and white painted decoration: no. 103); and colour-coated mortaria (Young C100: nos. 116-118).

The vessels included in the category of late Trier ware are described in Symonds 1992, Chapter 8. At the time of writing that chapter, it was known that the ware was common in the Rhineland, especially in late cemetery sites, at Trier itself, at Bonn, at Cologne, at Nijmegen and at Krefeld. Although examples do exist in French museums (Symonds 1992, fig. 49, nos. 849-850, respectively at the Musée des Antiquités Nationales and the Musée Bargoin at Clermont-Ferrand), the ware is mostly absent from sites to the south of the Rhineland, and does not appear to have reached Britain. It did, however, reach Oudenburg, where it has been recorded in greatest numbers in the

post-Roman and mixed levels – indeed by sherd count it is the most common fabric in the post-Roman levels, and by other measures it is the second most common, after Oxfordshire ware. Late Trier ware, like *Moselkeramik*, occurs mainly as beakers (98.9%, Table 46), with not much variety of shapes, as can be seen in our illustrated examples, nos. 120-129 (see also Fig. 46).

The final illustrated vessel, Plate CXLII: 130, ought perhaps to have been classified as samian ware: it is a bowl with pale colour-coated fabric more likely to be a colour-coated variation of a late sigillata bowl, similar to Drag. 49, but with a simpler curved rim, decorated with bands of rouletting. Its origin remains unknown.

#### 4. Motto beakers from Trier

The presence of *Moselkeramik* motto beakers is particularly significant as these are important chronological indicators. The study of motto beakers from Trier and other sites in the North of Gaul and *Britannia* has enabled S. Künzl (1997) to classify these beakers in five chronological groups, based on form and decoration elements, in relation to closed contextual data. She concluded that the start of the *Spruchbecher* (or white barbotine motto beaker) production was around AD 255. Her groups cover a date range from AD 255 to 355. However, at the St. Magnus / New Fresh Wharf site in London, excavated in 1974-78, ten or eleven<sup>73</sup> motto beakers came to light in the fill of the wooden quay construction and later levels (Richardson 1986, 119-120; Künzl 1997, 195). The samian assemblage from the London site, which, for example, offers one of the distinct parallels for that of the large waste-pit OS 4980 of fort level 4 of the Oudenburg site, has been dated to AD 235-245 (Bird 1986, 143; cf. Bird 2002, 34-35). Scholz (2006, 36) however refers to other authors who date this group between AD 210/230 and 260/270. At first sight, the date AD 235-245 seems to contradict the chronology by Künzl with AD 255 as start date for the production of motto beakers. In this respect it is important to draw attention to the dating conclusion of waste-pit OS 4980. The date of its samian assemblage has eventually been shifted to somewhat later (c. AD 250-260), and accompanying other pottery evidence has even concluded to a date for the whole pottery assemblage of AD 260-270 (Vanhoutte *et al.* 2009c). Recently, this date could even be set more specifically, because a small, heavily corroded, coin hoard was found in the infill of the waste-pit, which could only be recognised through X-radiation and cleaning after the study (and publication) of the pottery. Its closing coin by Gallienus of AD 267-268 indicates that the infill happened only after at least AD 267, a date which could not be assumed by the samian. With an absence of radiate copies, which are abundant in the final layers of fort level 4, it is likely that rubbish pit OS 4980 functioned in the period c. AD 267/268-275. This date has important consequences: it reveals the long life-span that can be attributed to the samian within this context.

Most of the samian wares of the London site came from the filling of the Roman quay, *i.e.* phases 4 (construction of quay) and 5 (infill) at the site, and from later levels<sup>74</sup> (Bird 1986, 139). Both phase 4 and 5 were considered as contemporary (or nearly so) and dated c. AD 225-245, mainly based on the dendrochronological analyses and the pottery evidence. The latter mainly supported on the samian conclusions. Moreover, it is important to point to the difficulty the authors faced in interpreting the tree-ring dates (Hillam and Morgan 1986, 84; Miller *et al.* 1986, 63-64). Phase 5 is definitely stratigraphically later than the quay construction '*dated by dendrochronology to sometime during 209-244 or shortly after*' (Miller *et al.* 1986, 63). Richardson in the same publication summarised: '*It must reluctantly be concluded that there is much dating evidence, but little of it certain enough to form the basis for categorical statements. What can be said is that the quay contains material dated c. AD 180-245, that on dendrochronological evidence the material can have been deposited no earlier than c. AD 209, and that on the evidence of a small quantity of East Gaulish Rheinzabern samian in the lower fills of the quay it seems possible that the quay was filled in the second quarter of the 3rd century*' (Richardson 1986, 98). Künzl concluded from these uncertainties that the accompanying pottery could also have been of later date, namely from around

<sup>73</sup> Künzl (1997, 195) lists three unpublished motto beakers (LON 15-17) of which cannot be ruled out that LON 16 and LON 17 belong to the same vessel.

<sup>74</sup> At least four vessels of the New Fresh Wharf site did not belong to the Roman levels (Künzl 1997, 195).



AD 260 (Künzl 1997, 21; see also Desbat and Vilvorder 2000, 184), and apparently considered the New Fresh Wharf motto beakers not as conclusive evidence to adapt her chronological groups, a classification that she based on closed contextual data from a wide range of sites. Simultaneously, it should be emphasised, though, that the London assemblage has been studied by several specialists, who themselves applied a high degree of scepticism to come to their final conclusions on the dating of the pottery assemblage. The St. Magnus / New Fresh Wharf material cannot simply be written off as unreliable, although on the other hand one has to remind the dating shift the OS 4980 assemblage underwent (see above). Also Desbat and Vilvorder (2000, 184), based on typological arguments, endorsed Künzl's hypothesis for an AD 260 start date for the London assemblage. Clearly more research is needed, with integration of more recently excavated find contexts, to come to a more definite conclusion on the actual start date of the motto beaker.

The Oudenburg assemblage yielded 54 fragments of such motto beakers, resulting in at least eight individuals. They are illustrated as Plate CXXXVIII-CXL: 16, 25, 34, 35, 36, 37, 56 and 57. Four of them are sufficiently preserved to enable an identification according to the Künzl classification (Table 45).

cat.no.	level	find location	Künzl 1997 classification	dating according to Künzl	reference
36	FL 4	large waste-pit OS 4980	Gruppe II	AD 260-270	Künzl 1997, 56
37	FL 4	final layers FL4	Gruppe IIc	AD 270-280	Künzl 1997, 62
34	FL 4	hearth 18 (end phase FL4)	Gruppe IV	AD 280-310/315	Künzl 1997, 65
35	FL 4	final fire/demolition layers FL4	Gruppe IV	AD 280-310/315	Künzl 1997, 65

Table 45: The four motto beakers recovered from the south-west corner site which can be identified according to the classification by Künzl (1997).

As these all belong to fort level 4, they contribute significantly to the chronology of this level. Of the other fragments, one body sherd was found in a context of fort level 2. As motto beakers only started to be produced around AD 255, and based on the dates resulting from the accompanying pottery, this fragment should be considered as an intrusive find (with a weight of only 2 grammes, this is certainly possible). Fort level 3 yielded three body fragments of motto beakers, of which two were found in key contexts (gully OS 1169 and pit OS 80925). When relying on Künzl's chronology, they indicate a date after AD 255, at least for the end of this fort level 3 occupation. Apart from the individuals specified above, seven more body fragments were recovered from fort level 4. Three fragments belonged to fort level 5 but should be considered as dug-up items, as is also the case for the fragment found in the 5+post level and the one in the post-Roman level.

## 5. Conclusions from the non-samian fine wares and their significance within a wider context

The supply of fine wares to the Oudenburg fort was exclusively long-distance, as no significant fine ware pottery production centres were established nearby. The trade to Oudenburg coincides with a period in northern Europe, and especially Britain, when production of pottery types like fine wares and mortaria became increasingly centralised, with otherwise only a few local productions left, serving limited regions. The centralising trend seems to have begun on the Continent however, with the wide distribution of Cologne colour-coated ware in the 2nd century both down the Rhine and along the established roads leading south-west towards Bavay providing firm evidence. In the 3rd century, Trier became increasingly important to eventually be the main supplier of fine ware beakers by the later 3rd century. Thus, in the late 2nd and 3rd century the Oudenburg fort was mainly supplied from the Rhineland; Gaulish potteries were hardly of significance, only distributing to Oudenburg in very limited quantities (Fig. 40-41). From the later 3rd century onwards, and increasing towards the 4th century, also a wide variety of Romano-British fine wares came in.



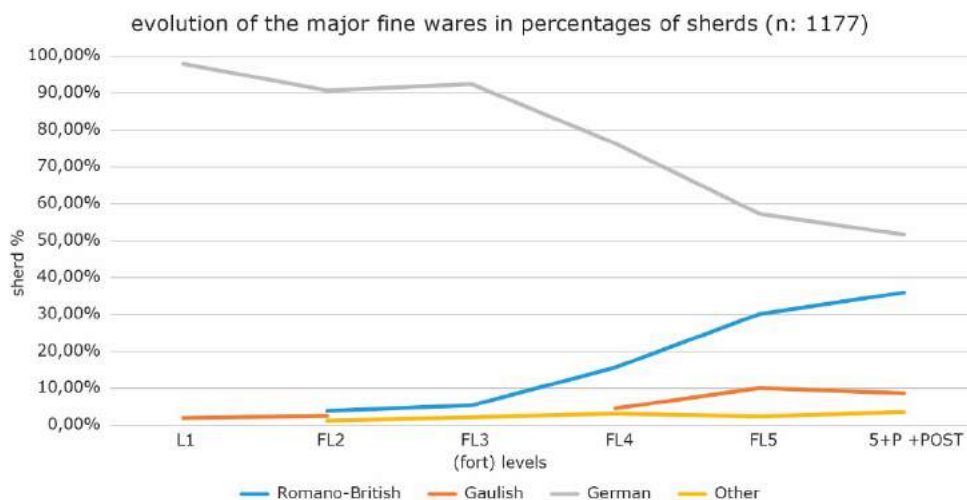


Fig 40: Chronological evolution of the presence of Romano-British, Gaulish, German and other fine ware imports at the Oudenburg fort, based on sherds count. The Romano-British sherds of fort level 2 are most likely residual elements.

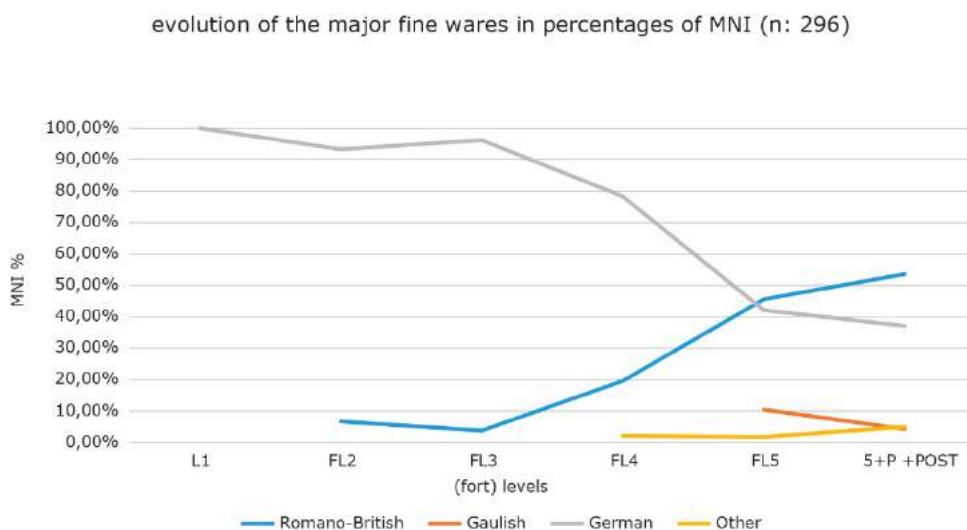


Fig 41: Chronological evolution of the presence of Romano-British, Gaulish, German and other fine ware imports at the Oudenburg fort, based on MNI. The Romano-British sherds of fort level 2 are most likely residual elements.

Each of the major centres whose products would arrive at Oudenburg has a somewhat different history, and various specific characteristics.

Cologne began fine ware production in the 1st century, but probably not before about c. AD 80, when the centre began to make globular, cornice-rimmed beakers in plain versions, or decorated with roughcasting, underslip barbotine scales or abstract leaves (Höpken 2015). These early beakers do not appear at Oudenburg, but they were certainly more widely exported than Colchester wares. Like Colchester, production at Cologne is associated with a major Roman town, but, undoubtedly because of the presence of the Rhine, coupled with the relatively high quality of the products, wider distribution began almost immediately. Cologne had thus most of a century of fine ware production before its wares began to arrive at Oudenburg, where it would be the most common non-samian fine ware found in levels 1 to 3 (see for an overview of the attested types: Fig. 42). In fort level 4, however, from about AD 260 onwards, the numbers of Cologne ware vessels drop fairly dramatically, which suggests that perhaps the industry had declined by the middle of the century, perhaps because of manufacturing problems, or perhaps more likely because of the superior competitive quality of the *Moselkeramik* beakers coming from Trier, which came to dominate the market not only throughout the Rhineland but at Cologne itself. While there is some later production at Cologne, it does not seem to have found the export market of late Trier wares in the 4th and 5th centuries.

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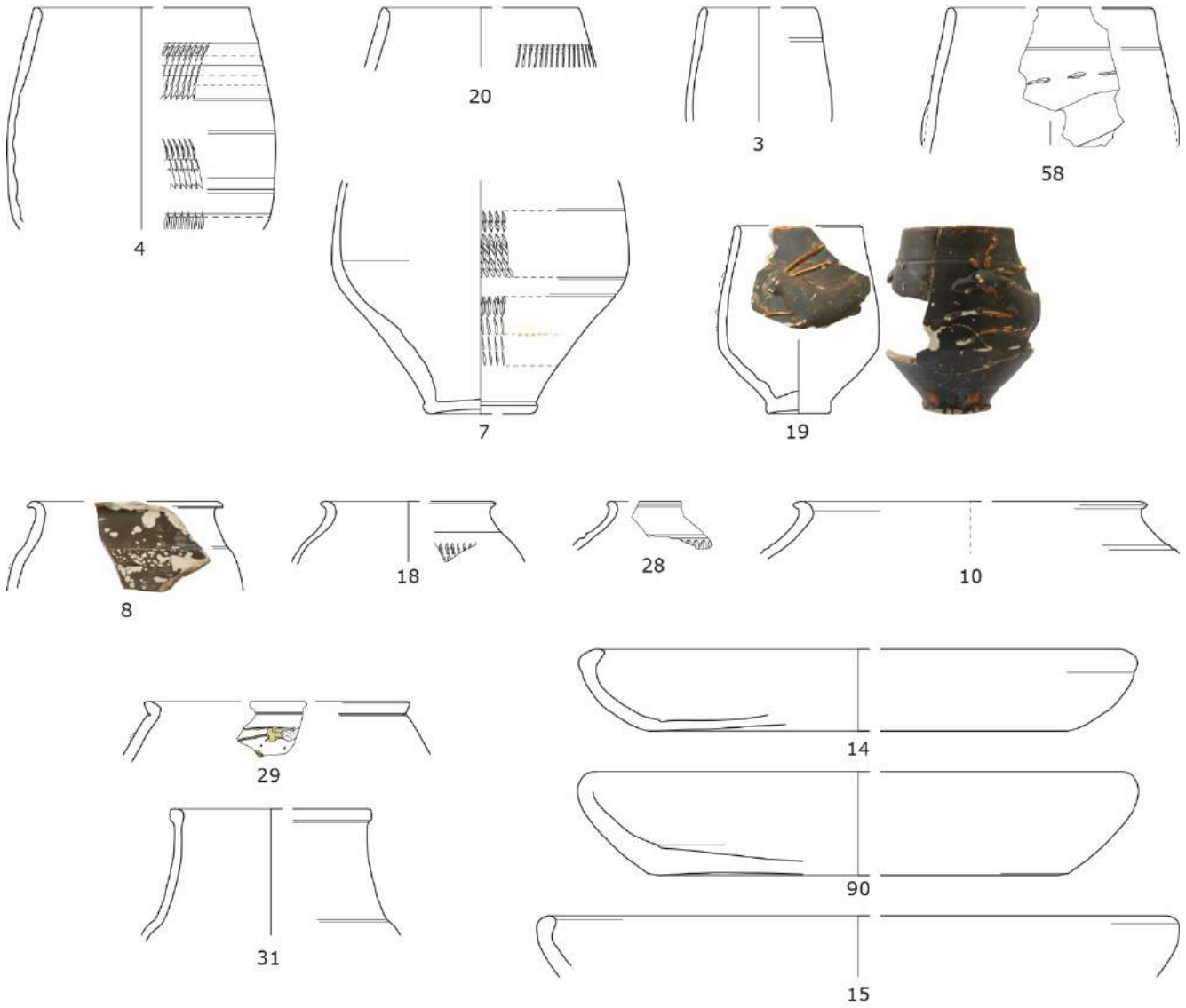


Fig 42: Overview of the attested Cologne vessel types.

Although *Moselkeramik* pottery may have been made for a local market somewhat earlier, Trier seems to have blossomed as a centre for fine ware production from c. AD 180. By the time of Oudenburg level 1, the wares were well-established, making up somewhere between one-quarter and one-third of the fine wares (almost all the rest being from Cologne), however keeping in mind that all counts for level 1 are very low. There is apparently a significant decline in level 2, although since the numbers of sherds (much less vessels) is still quite small, it is difficult to know what this decline in the second quarter of the 3rd century might signify. In levels 3, 4 and 5 the quantities of *Moselkeramik* rise again, making it the most common fabric in the latter two levels (for an overview of the attested types: Fig. 43).

MOS



Fig 43: Overview of the attested vessels in Moselkeramik.

With the decline in *Moselkeramik* which begins in level 5, it is clear that the production and distribution of the ware was seriously interrupted, probably beginning in the third quarter of the 3rd century. But already with small quantities appearing at that time, it is clear that Trier potters decided to make an alternative, less costly and high-quality version of their beakers, using an inferior fabric, firing at a lower temperature and decorating with white paint rather than barbotine, and, perhaps surprisingly, this became a success in the 4th century (cf. Symonds 1992, Chapter 8). One explanation for this could perhaps be because these vessels were very popular as grave goods, and as such would be viewed and used only at the time of a funeral, after which they would disappear from circulation. In any case, late Trier ware is the second most common ware found in the post-Roman levels at Oudenburg (for an overview of the attested types: Fig. 44).

late TRIER

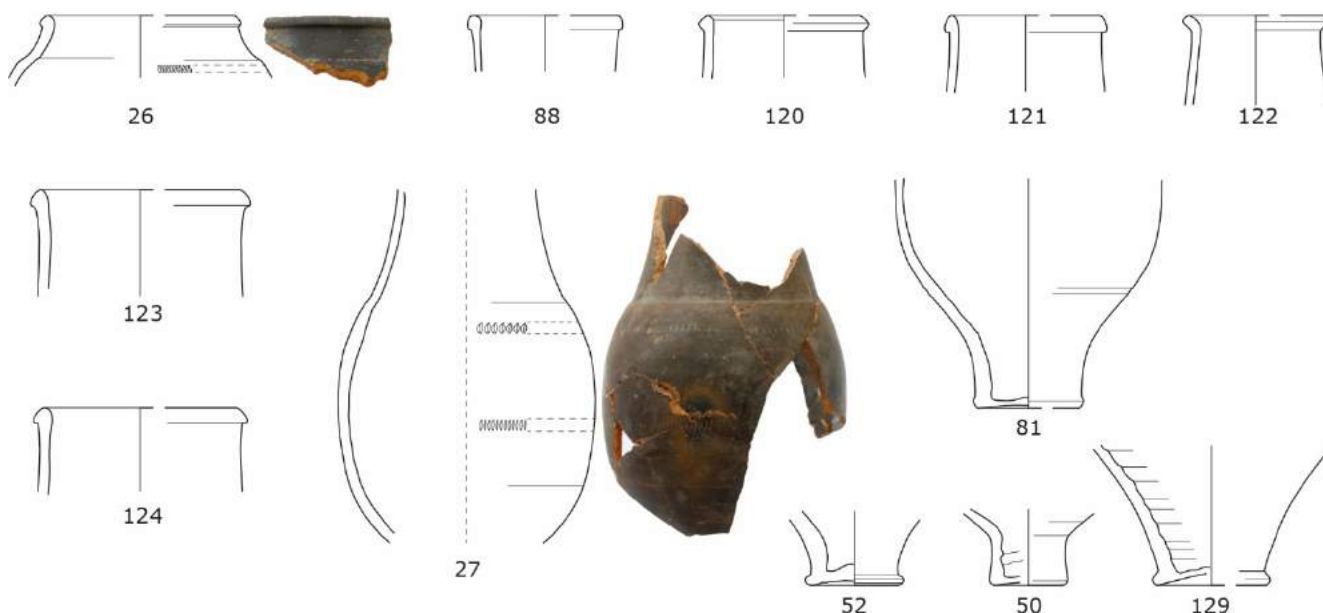


Fig 44: Overview of the attested late Trier beaker types. Note: it cannot be ruled out that no. 26 is not a beaker from Alsace and the Wetterau (see before).

The Nene Valley began as a production centre supply at an urban agglomeration, *Durobrivae*, but, situated in a relatively rural area near the modern town of Peterborough, it began exporting fine wares from about the mid-2nd century. In the 3rd and 4th centuries, its fine wares and mortaria were exported more or less throughout Britain (Howe *et al.* 1980). Its earlier phase of production was essentially devoted to making beakers copying contemporary beakers from Cologne (HPM, fig. 5, nos. 44-48), which did not reach as far as Oudenburg (although they did reach Colchester and London). Thereafter the production switched to copying *Moselkeramik*, along with, some more original beaker forms, clearly reflected in the imports at Oudenburg. Well before this change the Nene Valley industry had lost any dependence it previously had on a local market; it became, along with the Oxfordshire industry and to a lesser extent the production centres at Hadham and the New Forest, devoted to long-distance trade (for an overview of the attested LNV vessel types: Fig. 45).

LNV

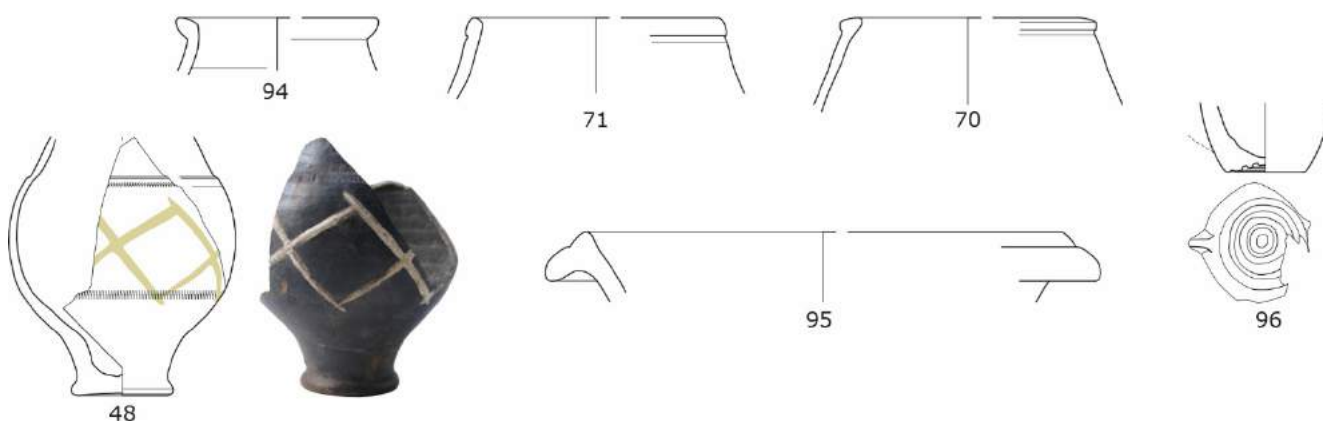


Fig 45: Overview of the attested vessel types from the Lower Nene Valley.

While production began in the 2nd century in the region to the east of present-day Oxford city, there was never much of a local market for the products. The industry seems to have developed mainly for centralised, long-distance distribution beginning in the early 3rd century, and it grew to become arguably the largest pottery industry in Roman Britain (cf. Young 1977). Its development seems to have mainly centred around copying samian ware, in particular the last forms that arrived from the East-Gaulish industries, but while these forms would continue, in the face of the severe

decline in continental samian supply, the Oxfordshire potters began their own innovation, which became quite elaborate and refined, and specialising in painted and stamped decorations (see for an overview of the attested types: Fig. 46-47). Oxfordshire products, accompanied by those from the Nene Valley, dominate the late levels at Oudenburg, but what is exceptional about the former wares is the very wide variety of forms present. Oxfordshire potters seem to have been relatively uninhibited by the typological constraints of Gaulish samian potters, and the variety can be seen at Oudenburg as well as in Britain.

OXF

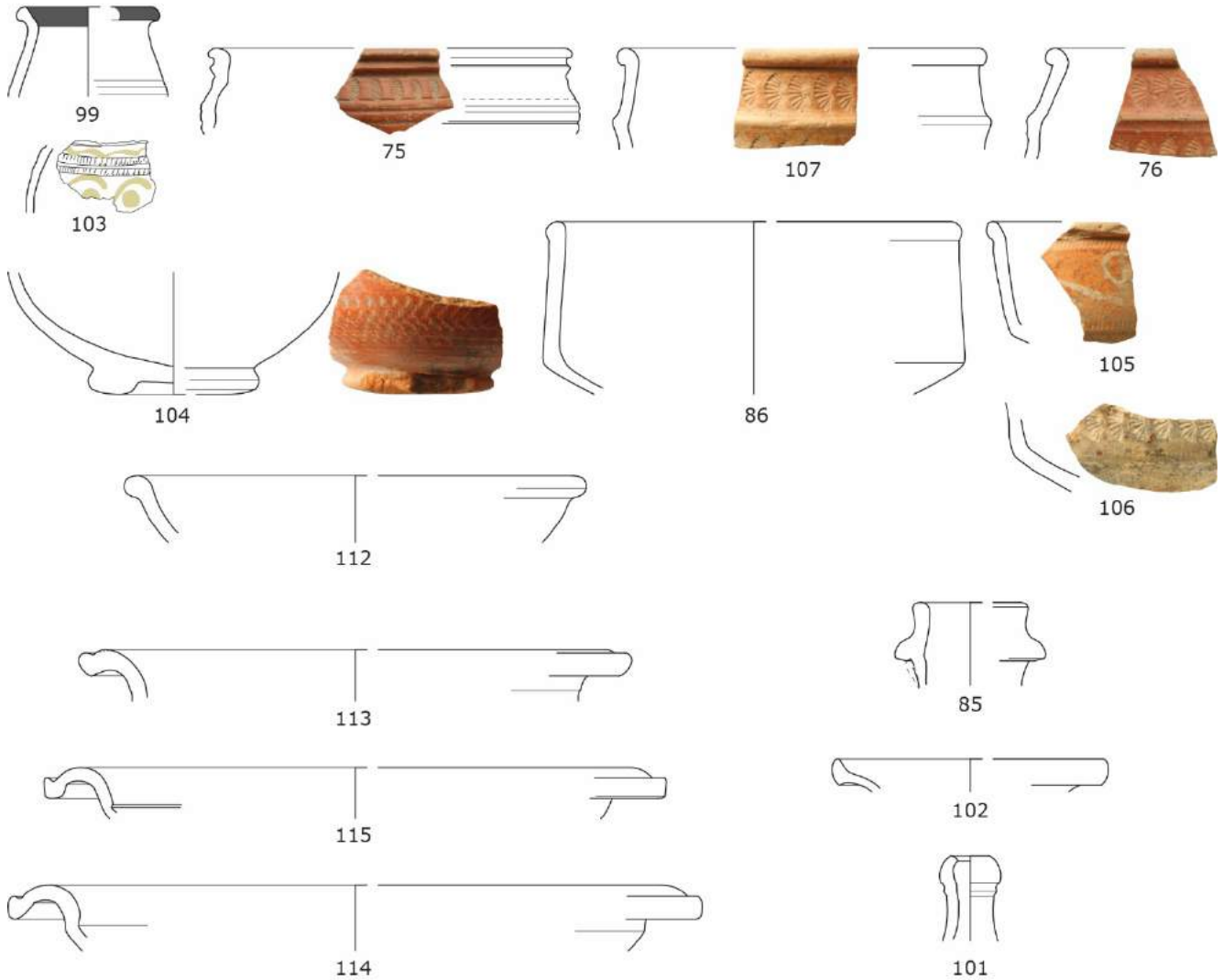


Fig 46: Overview of the attested Oxfordshire vessels. (part 1)

OXF

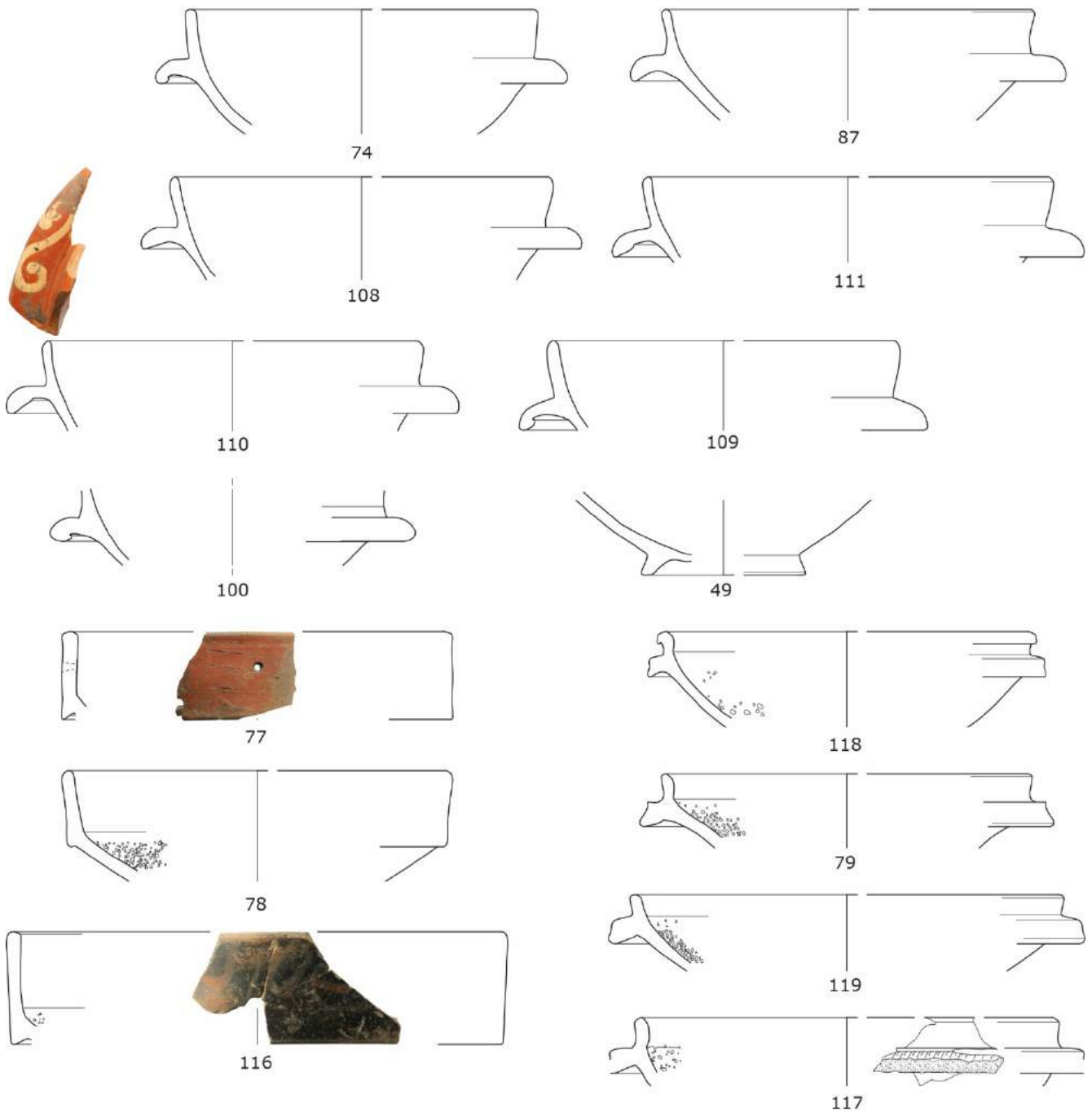


Fig 47: Overview of the attested Oxfordshire vessels. (part 2)

Other late Romano-British production centres, notably Hadham (32 sherds), the New Forest (37 sherds) and Pevensey (one sherd), are represented by small numbers of sherds. The same is the case for fine wares from Central Gaul (one sherd), La Madeleine (two sherds), and for North African Red Slip ware (two sherds) (see for the representative New Forest types at Oudenburg: Fig. 48). The numbers for Hadham ware and New Forest ware are notably higher though, than those for Colchester (just eighteen sherds), emphasising thus the lack of export from the latter centre. At Colchester, fine wares began to be manufactured in the pre-Flavian period, and the industry grew steadily for roughly three centuries, but from the beginning there never seems to have been a great interest in marketing or exporting the products (cf. Symonds and Wade 1999). At Oudenburg just eighteen sherds (six MNI, 0.3 EVEs, 181 g) have been recorded, mostly the mainstream Colchester colour-coated ware of the 2nd and 3rd centuries, beside the fabric defined as Colchester MR



(Symonds and Wade 1999, 294-297), a brown coloured ware mainly used to make a local version of the Drag. 38 flanged bowl (c. AD 250-400).

NFO

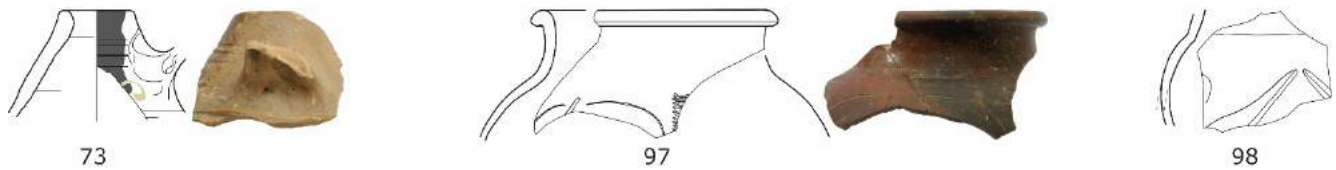


Fig 48: Overview of the attested New Forest vessels.

The major suppliers of fine wares to Oudenburg were thus the production centres at Cologne and Trier in the Rhineland, and at the Nene Valley, Oxfordshire, as well as Hadham and the New Forest in Britain. The Rhineland centres, the Nene Valley and the New Forest provided mostly beakers: 85% of the vessels from Cologne, 99% of the vessels from Trier, 87.8% of the vessels from the Nene Valley and 94.6% of the vessels from the New Forest were beakers. Of the Cologne colour-coated wares only 15% are plain dishes, perhaps playing the same role as Pompeian-Red ware dishes. At Trier it is clear that a wider variety of vessel forms was made (Symonds 1992; Künzl 1997), but they were intended for the local market or for Cologne, not for wider export. It is interesting to note that whereas fine ware production at Trier developed alongside samian ware production, probably with similar production standards, this was not the case at Cologne (where an alternative red fabric would have been required), or at the Nene Valley, most of whose products also have a white fabric, although some do have a pinkish fabric. Oxfordshire and Hadham ware are, by contrast, essentially late versions of samian ware, with a much wider variety of forms, some copying samian while others seem to be original.

Aside from the Cologne dishes, the essence of the competition between Cologne and Trier is between the tulip-shaped beaker and the necked globular beaker, the former shape notable for underslip barbotine decoration, either abstract or with running animals creating hunt scenes, while the latter shape was decorated with white barbotine, sometimes including white painted letters of a word or motto, and evolving in late Trier ware into white painted decoration. In level 1, the absence of Central-Gaulish beakers at Oudenburg is noted; in Britain, it could be surmised from the presentations of Brewster (1972) and Greene (1978) that the main competition in imported beakers was between those from Central Gaul and those from Trier. The assemblage at Oudenburg shows that while this might have some relevance in British assemblages of the late 2nd or early 3rd centuries, there was probably relatively little overlap in the main floruits of these two wares, whereas Cologne and Trier had a considerable period of competition in the supply of beakers, that did not come to an end until c. AD 260. All of this is reflected in the wares produced in the Nene Valley, where the earlier vessels are tulip-shaped, cornice-rimmed beakers, copying both Central-Gaulish (dark colour-coated with red fabric) and Cologne (dark colour-coated with white fabric) vessels, and the later vessels are neck globular beakers copying Trier products (although some similar vessels had already been made in Central-Gaulish production centres).





## 6. Catalogue of the illustrated fine wares of the south-west corner site

Table 47: The illustrated non-samian fine wares of the south-west corner site. Context, characteristics and description. The catalogue numbers are linked to Plates CXXXVIII-CXLII. The catalogue is followed by the clarification of the used codes. (see following pages)

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	g	code	date	description
1.	C0107	70976	1		2	1		47	KOL CC 3J	100-250	Cologne cc ware tulip-shaped beaker with dark green slip, Hees 2 or 3; the complete base of a small vessel
2.	C0120	80935	1		7	1		93	KOL CC 3J rod	100-250	Cologne cc ware tulip-shaped beaker with dark grey slip, Hees 3, with several rows of rouletted decoration
3.	C1432	6002	1	55	3	1	34%	11	KOL CC 3J	100-250	Cologne cc ware tulip-shaped beaker with dark grey slip, Hees 3
4.	C1943	30916	1	95	8	1	45%	74	KOL CC 3J rod	100-250	Cologne cc ware tulip-shaped beaker, Hees 3b
5.	C1941	30916	1	65	12	1	69%	77	MOS BS 3K rod	180-275	Moselkeramik necked globular beaker, NB 33; profile; three rows of rouletting
6.	C1942	30916	1		2	1		14	MOS BS 3K rod	180-275	Moselkeramik necked globular beaker, NB 33; base, with lower row of rouletting preserved
7.	C5122	44910	1+2		3	1		206	KOL CC 3J rod	100-250	Cologne cc ware tulip-shaped beaker with dark green grey slip, Hees 3 / Höpken E22, and rouletted decoration; almost complete profile
8.	C0147	70934	2	80	1	1	2%	14	KOL CC 3E bad	100-250	Cologne cc ware beaker with short everted rim, barbotine decoration and abraded dark grey slip; NB 32b
9.	C5001	11011	2		3	1		117	KOL CC 3E rod	100-250	Cologne cc ware beaker with short everted rim, roulette decoration and orange to grey slip; NB 32c; base
10.	C5005	1442	2	140	1	1	6%	8	KOL CC 3E	100-250	Cologne cc ware beaker with short everted rim, with orange to dark grey slip, NB 32
11.	C0399	80939	2		2			21	KOL CC 3J rod	100-250	Cologne cc ware tulip-shaped beaker with dark grey slip and rouletted decoration; Hees 3b / NB 30b
12.	C5000	23970	2		1	1		36	KOL CC 3J	100-250	Cologne cc ware tulip-shaped beaker; Hees 3; base and wall of small vessel
13.	C5007	71654	2	50	1	1	14%	4	KOL CC 3J	100-250	Cologne cc ware tulip-shaped beaker; Hees 3, with dark grey slip
14.	C0350	80998	2		3	1			KOL CC 5J	100-250	Cologne cc ware dish with plain, incurving rim, with orange to dark brown slip; Hees 17a / NB 40 / Höpken E1/E2
15.	C5004	1896	2	270	1	1	4%	15	KOL CC 5J	100-250	Cologne cc ware dish with plain, incurving rim, with orange to brown slip, Hees 17a / NB 40 / Höpken E1/E2
16.	C0297	81906	2		1			2	MOS BS 3 bad wpd	255-280	Moselkeramik beaker sherd with white barbotine and white painted decoration; part of a motto beaker with part of painted letter
17.	C5013	72282	2+3	70	1	1	29%	5	MOS BS 3K	180-275	Moselkeramik necked globular beaker, NB 33
18.	C0853	70965	3	85	2	1	15%	9	KOL CC 3E rod	100-250	Cologne cc ware beaker with short everted rim with dark grey slip, NB 32c
19.	C0852	70965	3	55	5	1	53%	73	KOL CC 3J bad	100-250	Cologne cc ware tulip-shaped beaker with dark grey green slip with orange brown spots, Hees 3c / NB 30c; complete profile with barbotine-decorated hunting scene

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	g	code	date	description
20.	C0855	70965	3	90	1	1	18%	13	KOL CC 3J rod	100-250	Cologne cc ware tulip-shaped beaker with brown slip, Hees 3b / NB 30b
21.	C5024	72064	3		1	1		142	KOL CC 3 rod	100-250	Cologne cc ware beaker with dark grey slip with orange brown spots at the base, NB 32c; base with lower body
22.	C0854	70965	3	80	1	1	7%	7	MOS BS 3K rod	180-275	Moselkeramik necked globular beaker, NB 33
23.	C0967	80925	3	55	3	1	20%	18	MOS BS 3K rod	180-275	Moselkeramik necked globular beaker, NB 33a / Symonds Trier form 1, with tall neck
24.	C0947	81053	3	40	1	1	29%	6	MOS BS 3K rod	180-275	Moselkeramik necked globular beaker, NB 33, Symonds Trier form 1
25.	C5014	1169	3		1			2	MOS BS 3 wbad wpd	255-280	Moselkeramik motto beaker, with one white painted letter preserved: I with rouletting row on top and underneath row of short lines and below part of scroll
26.	C5015	1924	3	80	1	1	21%	10	late Trier? 3 rod	300-400	Late Trier beaker with rouletted decoration
27.	C5023	70919	3+4		16			131	late Trier 3K rod	300-400	Late Trier necked globular beaker, Symonds form 1, Group 61 (fig. 46); large part of vessel; but without rim or base
28.	OS4980.C048	4980.I	4	80	1	1	8%	5	KOL CC 3E rod	100-250	Cologne cc ware beaker with short everted rim with dark grey slip, NB 32c (residual)
29.	C1144	7957/7971	4	120	1	1	7%	7	KOL CC 3J bad	100-250	Cologne cc ware tulip-shaped beaker with dark grey slip, Hees 2; with barbotine-decorated hunting scene (?)
30.	OS22926.C041	22926 (CP)	4		1	1		30	KOL CC 3J bad	100-250	Cologne cc ware tulip-shaped beaker, Hees 2b; base with barbotine-decorated hunting scene
31.	OS22926.E004	22926 (CP)	4		1			3	KOL CC 3K rod	100-250	Cologne cc ware necked beaker with roulette decoration
32.	C5167	7944	4	90	2	1	20%	21	COL CC II 3L	200-300	Colchester cc ware (type 2) pentice beaker, Symonds & Wade 1999, fig. 5.36, nos. 179-181
33.	C1495	7947	4	55	1	1	40%	17	MOS BS 3E	180-275	Moselkeramik beaker with short everted rim, NB 32; burnt to black
34.	C5049	7932	4	45	1		17%	3	MOS BS 3K wbad wpd	280-310/315	Moselkeramik necked globular motto beaker, NB 33, similar to Symonds Trier form 1, Group 36, fig. 28; with very metallic slip, and with white barbotine wavy lines above and beneath the white painted letter E; Künzl (1997) Gruppe IV
35.	C5046/ C5048/ C5054	80942 - 7667 - 7924 - 7952	4	60	14	1	5%	9	MOS BS 3K wbad wpd	280-310/315	Moselkeramik necked globular motto beaker, NB 33a/ Symonds Trier form 1, Group 36, fig. 28; probably the same small individual as C 5048 and C 50547; with bands of white barbotine decoration above and below the white painted letters A (?), P E and V, with a large white dot as a separator; Künzl (1997) Gruppe IV
36.	OS4980.C043	4980.I	4	50	6	1	7%	77	MOS BS 3K wbad wpd	260-270	Moselkeramik necked globular beaker, NB 33/ Symonds Trier form 1, Group 36, fig. 29; with motto: ]VEA]; Künzl (1997) Gruppe II; almost complete profile, without the rim; cross-join with 70581-70585.

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	g	code	date	description
37.	C5034	1025	4?		2			27	MOS BS 3 wbad wpd	270-280	Moselkeramik globular motto beaker, NB 33, Symonds Trier form 1; barbotine-decorated scrolls, dots and short lines with part of letter I in white painted decoration (lacking rim or base); Künzl (1997) Gruppe IIIc
38.	C5041	8947	4		1			5	MOS BS 3K rod	180-275	Moselkeramik necked globular beaker, NB 33c, similar to Symonds Trier form 1, Group 33, fig. 25, no. 490; with vertical indentations and roulette decoration
39.	C5056	4980.I	4		1				MOS BS? 3K rod	180-275	Moselkeramik necked globular beaker, NB 33c/ Symonds Trier form 1, Group 35, fig. 27; base, and body only; burnt; cross-join with 4992-4967b (level 5)
40.	C1145	7957/7971	4		1			5	MOS BS 3 wbad wpd	180-275	Moselkeramik beaker, NB 33c, with white barbotine & white painted decoration
41.	C5050	8943	4		1			6	MOS BS 3 wbad	180-275	Moselkeramik beaker, NB 33c, barbotine drops on edge of deep indentation; burnt
42.	C5032	8973	4		1	1		21	MOS BS 3	180-275	Moselkeramik globular beaker, NB 33; base and part of lower body
43.	C5047	70036	4	50	3	1	50%	18	MOS BS 3	180-275	Moselkeramik beaker, NB 29, Symonds form 2; cross-join with 7957/7971/7944/7773/70036; burnt
44.	C5033	8966	4		6			10	ARG BS 3 rzd2, rod	200-300	Argonne black-slipped ware, with silvery metallic cc; Chenet 339a, a rare beaker form with both roughcasting and rouletting
45.	C5035	1025	4?		1			3	LNV CC 3 wpd	150-400	Lower Nene Valley ware beaker with black slip, and white painted lattice decoration
46.	OS4980.C046	4980.I	4		2			9	LNV CC 1/3 wbad, rod	150-400	Lower Nene Valley ware beaker or flagon with black slip, and white barbotine diagonal lines, with one band of rouletting visible
47.	OS4980.C047	4980.I	4		4			51	LNV CC 3 rod	150-400	Lower Nene Valley ware beaker, with red-brown interior slip and flamed bluish-grey metallic exterior, with three rows of rouletting
48.	OS4980.C044	4980.I	4		2	1		138	LNV CC 3K wbad, rod	150-400	Lower Nene Valley ware necked globular beaker with black cc and white barbotine lattice decoration, with two bands of rouletting; cross-join with OS2949 (level 5)
49.	OS22926.I.020	22926.level IV	4		1	1		46	OXF RS 4M?	240-400	Oxfordshire red/brown colour-coated ware, probably the base of a flanged bowl copying Dragendorff form 38
50.	C5039	1117	4		1	1		10	late Trier 3JP	300-400	late Trier beaker with pedestal base (Symonds 1992, Group 21, fig 16, nos. 348-350 203-212), with orange slip
51.	C5044	8980	4	65	1	1	10%	3	late Trier? 3	300-400	late Trier (?) beaker
52.	C5157	7949	4		1	1		43	late Trier? 3 wpd	300-400	late Trier (?) beaker, with some very small white painted drops
53.	C5059	4992	4+5	90	5	1	14%	14	ARG BS 3K	200-300	Argonne black-slipped ware necked globular beaker, NB 33a
54.	C5176	7909	4+5	60	1	1	6%	7	ARG BS? 3	200-300	Argonne black-slipped ware necked beaker, Symonds form 2 (Group 21, nos. 348-9); burnt to black
55.	C5063	7935	4+5	40	1	1	24%	5	MOS BS 3K	180-275	Moselkeramik necked globular beaker, NB 33, Symonds Trier form 1

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	g	code	date	description
56.	C5055	7952	4+5		1			6	MOS BS 3 wbad wpd	255-280	Moselkeramik necked globular motto beaker, NB 33, Symonds Trier form 1, with part of a barbotine scroll with white painted letter underneath
57.	OS4980.C045	4968	4+5		1			3	MOS BS 3 wbad rod	255-280	Moselkeramik motto beaker with white barbotine scroll and row of dots and one band of rouletting
58.	C5077	4912	5	90	1	1	8%	20	KOL CC 3J bad	100-250	Cologne cc ware tulip-shaped, Hees 3c / NB 30c, with dark grey slip and underslip barbotine hunting scene decoration: part of animal body underneath line of drops
59.	C5068	4923 (PF)	5		1			23	KOL CC 3 bad	100-250	Cologne cc ware beaker with dark grey slip; underslip barbotine hunting scene with running deer
60.	C5071	8911	5?		1	1		43	KOL CC 3J bad	100-250	Cologne cc ware tulip-shaped beaker, Hees 3c / NB 30c, with underslip barbotine decoration hunting scene (?)
61.	C5085	7923	5	50	1	1	20%	9	MOS BS 3E	180-275	Moselkeramik beaker with short everted rim, NB 32; burnt
62.	C5080-5081	8914	5	70	7	1	12%	37	MOS BS 3K wbad	180-275	Moselkeramik necked globular beaker, NB 33, with white barbotine-decoration of circles and scrolls; at the bottom a row of dots, at the top a wavy line
63.	C5065	4923 (CP)	5	100	1	1	7%	4	MOS BS 3K	180-275	Moselkeramik necked globular beaker, NB 33
64.	OS2562.C283	2562 (CP)	5	70	4	1	24%	7	MOS BS 3K	180-275	Moselkeramik necked globular beaker, NB 33c, Symonds Trier form 1; small individual
65.	C5083	8914	5		1	1		65	MOS BS? 3	180-275	Moselkeramik beaker, NB 33 (?); with black coating on the base interior; burnt
66.	C5072	8936	5		1	1		30	MOS BS 3 rod	180-275	Moselkeramik beaker, NB 33 (?); with one band of rouletting at the lower body
67.	C5067	4923 (PF)	5	60	2	1	41%	28	ARG BS 3K	200-300	Argonne black-slipped ware necked globular beaker, NB 33, with a long neck
68.	C5165	2951	5		1	1		7	ARG BS 3	200-300	Argonne black-slipped ware beaker, base only
69.	OS2562.277	2562 (CP)	5		1	1		38	ARG RS 1	200-300	Argonne red-slipped ware flagon, 3-lobed handle
70.	C5042	8905A	5 (+4)	90	1	1	9%	7	LNV CC 3	300-400	Lower Nene Valley ware beaker with pale brown to black slip, HPM 52; small bead under the rim
71.	C5164	2951	5	100	1	1	12%	11	LNV CC 3	300-400	Lower Nene Valley ware beaker with red interior and black exterior cc, variant of HPM 52
72.	C5082	8914	5		1			12	LNV CC 3 wpd	200-400	Lower Nene Valley ware beaker with orange slip and white painted lattice decoration
73.	OS2562.C097	2562 (FF)	5		1			26	NFO CC? 1 wbad	300-400	New Forest colour-coated ware (?) flagon with greyish brown interior and exterior cc, orange; not a rim, but probably the neck of a flagon with start of a handle and part of a barbotine scroll decoration fabric; fabric identification Malcolm Lyne, pers. comm.
74.	C3230/3373	8937	5		2	1		96	OXF RS 4C51	240-400	Oxfordshire red/brown colour-coated ware, Young C51, copy of Drag. 38; interior coating worn collar with part of wall
75.	OS2562.C044	2562 (FF)	5	150	1	1	7%	16	OXF RS? 4C73 STD	270-400	Oxfordshire red/brown colour-coated ware, Young C73 / 84, with stamped decoration
76.	OS2562.C045	2562 (FF)	5	140	1	1	3%	18	OXF RS? 4C84 STD	350-400	Oxfordshire red/brown colour-coated ware, Young C84, with stamped decoration

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	g	code	date	description
77.	OS4923.C073	4923 (CP)	5	170	1	1	7%	29	OXF RS 7C97	240-400	Oxfordshire red/brown colour-coated ware, Young C97, mortarium copying Drag. 45; stylised spout hole surrounded by oblique incised lines (bat's head or lion's head missing); with a second, lower repARATION (?) hole
78.	C3131	8905A	5 (+4)		2	1		57	OXF RS 7C97	240-400	Oxfordshire red/brown colour-coated ware, Young C97, mortarium copying Drag. 45; partly burnt to black; cross-join with C3231
79.	C5241	30905	1>5	180	1	1	9%	45	OXF RS 7C100	300-400	Oxfordshire red/brown colour-coated ware, Young C100.2, mortarium with angular flange
80.	OS2562.C100	2562 (S)	5		1	1		68	PEV RS 4/5	300-400	Pevensy red-slipped ware, base of bowl or dish
81.	C5075	7978	5		4	1		91	late Trier 3	300-400	late Trier beaker, base and lower body
82.	OS2562.C002	2562 (PF)	5		1			8	RS? 1 wpd	undet.	unattributed red-slipped ware flagon with white painted dots (diameter 3 to 4 mm)
83.	C5177	44934	4+5+ post	70	1	1	2%	12	MOS BS 3K wbad rod	180-275	Moselkeramik necked globular beaker with white barbotine wavy line and one band of rouletting, NB 33, Symonds Trier form 1
84.	C3447	8907	5+ post	120	3	1	42%	63	HAD RS 3E	200-400	Hadham red ware beaker with short everted rim, similar to Symonds & Wade, fig. 5.55, no. 133; three non fitting rim sherds, all somewhat burnt
85.	C3419	8907	5+ post	50	1	1	12%	14	OXF RS 1C8	240-400	Oxfordshire red/brown colour-coated ware, Young C8 flagon
86.	C3420	8907	5+ post	180	1	1	14%	78	OXF RS 4C81	300-400	Oxfordshire red/brown colour-coated ware, wall-sided, bead-rimmed carinated bowl, Young C81, with very abraded surfaces
87.	C3544	8902	5+ post	180	1	1	12%	190	OXF RS 4M wpd	350-400	Oxfordshire red/brown colour-coated ware, Young C52.4; Dr 38-type flanged bowl with white painted decoration on the collar; interior coating abraded
88.	C5091	8907	5+ post	70	1	1	13%	3	late Trier 3K	300-400	late Trier necked globular beaker, Symonds Trier form 1
89.	C5168	4000C	post	340	1	1	4%	50	AFR RS? 5	360-470	African red slipped ware dish, rim of Hayes form 67-72
90.	C5143	4923 (L)	post	250	4	1	3%	117	KOL CC 5J	100-250	Cologne cc ware dish with plain, incurving rim, with orange slip, Hees 17a / NB 40 / Höpken E1/E2
91.	C5127	2000E	post		1			6	CGBL 3 bad	120-250	Central Gaulish black metallic ware beaker with a row of (underslip) barbotine dots
92.	C5161	30901-30902	post	70	1	1	6%	15	ARG BS 3K rod	200-300	Argonne black-slipped ware necked globular indented beaker, NB 33c, Symonds form 1 with large oval indentations and bands of rouletting at the join of neck & shoulder (cf Symonds 1992, fig. 18, Group 25; nos. 393 & 397)
93.	C5180	4923 (L)	post		5	1		34	ARG CLV	300-400	Argonne ware, mid-body of beaker or flagon with white-painted decoration, similar to Chenet 1941, pl. 17, types 334-5; burnt
94.	C5105	2040	post	90	1	1	11%	6	LNV CC 3L	300-400	Lower Nene Valley ware pentice beaker with short everted rim with black cc, probably HPM fig. 5, nos. 54-7
95.	C5112	4000F	post	200	2	1	8%	47	LNV CC 4M	300-400	Lower Nene Valley ware flanged bowl with dark green to black brown cc; HPM fig. 7, no. 79, Cam form 305B/Symonds & Wade EA type 79, London form 4M



cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	g	code	date	description
96.	C5104	1000A	post		1	1		28	LNV CC 9A?	200-400	Lower Nene Valley ware with orange brown cc; small vessel or oil lamp
97.	C5057	44932	post		11	1	54%	69	NFO CC 3 cgt	300-400	New Forest colour-coated ware beaker with short neck, Fulford fabric 1a (metallic); with incised curved lines, vertical stamped lines and vertical indentations; burnt; joins with OS4967a
98.	C5111	2034	post		1			14	NFO CC 3 cgt	300-400	New Forest colour-coated ware beaker, Fulford fabric 1a (metallic); with linear, oblique indentations
99.	C5152	4000N	post	70	1	1	13%	10	OXF BS? 3	240-400	Oxfordshire black-slipped ware beaker
100.	C4231a	2000G	post		1	1		52	OXF BS 4M	300-400	Oxfordshire black-slipped ware flanged bowl, Young C51/Dr 38
101.	C5096	4000K	post		1	1		18	OXF RS 1C8	240-400	Oxfordshire red/brown colour-coated ware flagon, Young C8
102.	C4476	4000K	post	120	1	1	8%	6	OXF RS? 1C13?	350-400	Oxfordshire red/brown colour-coated ware (?) flagon, probably Young C13
103.	C5141	7439/7440	post		3			8	OXF RS? 3 rod, wpd	240-400	Oxfordshire red/brown colour-coated ware beaker with orange fabric and slip; with white painted wavy line, curved lines and dots
104.	C3948	4000L	post		2	1		201	OXF RS? 4C55 rod	240-400	Oxfordshire red/brown colour-coated ware bowl, probably Young C55, with multiple bands of rouletting on lower body
105.	C4538	2000G	post	130	1	1	5%	15	OXF RS 4C69 rod, wpd	325-400	Oxfordshire red/brown colour-coated ware bowl, Young C69.2, with bands of rouletting above and below white-painted scroll decoration
106.	C2074	8903	post		1			28	OXF RS 4C83 rod, std	300-400	Oxfordshire red/brown colour-coated ware bowl, Young C83/84, with band of rouletting line and row of stamped shell decoration; burnt
107.	C4537	2000G	post	160	1	1	9%	24	OXF RS 4C84 std	350-400	Oxfordshire red/brown colour-coated ware bowl, Young C84.7, with two rows of stamped shell decoration
108.	C3590	4000G	post	170	1	1	18%	81	OXF RS 4M	300-400	Oxfordshire red/brown colour-coated ware flanged bowl, Young C51
109.	C4055	4000F	post	180	2	1	11%	56	OXF RS 4M	300-400	Oxfordshire red/brown colour-coated ware flanged bowl, Young C51; almost burnt to black
110.	C4235	2000G	post	170	1	1	2%	31	OXF RS 4M wpd	350-400	Oxfordshire red/brown colour-coated ware flanged bowl, Young C52.4 with white painted scroll decoration on the flange
111.	C3778	8901	post	180	1	1	8%	73	OXF RS 4M wpd	350-400	Oxfordshire red/brown colour-coated ware flanged bowl, Young C52, with white painted decoration on the flange (worm)
112.	C4915	2001	post	200	1	1	4%	20	OXF RS 5C44	270-400	Oxfordshire red/brown colour-coated ware dish, Young C44/45, or Dr 18/31
113.	C5108	2001	post	220	1	1	8%	22	OXF RS 5C49 rod	240-400	Oxfordshire red/brown colour-coated ware dish, Young C49, with rouletting on the rim
114.	C4592	1000	post	270	1	1	7%	37	OXF RS 5C50 rod, wpd	325-400	Oxfordshire red/brown colour-coated ware dish, Young C50, with rouletting on rim and white painted scroll decoration
115.	C4701	1000A	post	250	1	1	13%	43	OXF RS 5C50 wpd	325-400	Oxfordshire red/brown colour-coated ware dish, Young C50, with white painted decoration on the rim

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherds count	MNI	EVE	g	code	date	description
116.	OS4923.C189	4923 (L)	post	210	3	1	6%	43	OXF RS 7C98 wpd	350-400	Oxfordshire red/brown colour-coated ware mortarium, Young C98 or Dr 45 with fine micaceous fabric, and white painted scroll decoration; burnt to black
117.	C5222	10902	post	160	1	1	4%	23	OXF RS 7C100 rod	300-400	Oxfordshire red/brown colour-coated ware mortarium, Young C100.10, with rouletting on flange
118.	C4236	2000G	post	180	3	1	15%	46	OXF RS 7C100	300-400	Oxfordshire red/brown colour-coated ware mortarium, Young C100.2; interior worn, but with some remaining trituration grits
119.	C5156	2000M	post	200	1	1	2%	39	OXF RS 7C100	300-400	Oxfordshire red/brown colour-coated ware mortarium, Young C100.2, with very densely-packed trituration grits; burnt
120.	C5101	2012	post	65	1	1	13%	5	late Trier 3K	300-400	late Trier necked globular beaker, Symonds 1992, Groups 61-3
121.	C5120	4000J	post	80	1	1	10%	3	late Trier 3K	300-400	late Trier necked globular beaker, Symonds 1992, Groups 61-3
122.	C5130	4000G	post	50	1	1	23%	8	late Trier 3K	300-400	late Trier necked globular beaker, Symonds 1992, Groups 61-3
123.	C5133a	4000L	post	80	1	1	22%	15	late Trier 3K	300-400	late Trier necked globular beaker, Symonds 1992, Groups 61-3
124.	C5140	7439/7440	post	70	1	1	14%	8	late Trier 3K	300-400	late Trier necked globular beaker, Symonds 1992, Groups 61-3
125.	C5121	4000J	post		1			9	late Trier 3 wpd	300-400	late Trier ware, with white painted scroll decoration
126.	C5126	2000E	post		1			4	late Trier 3 rod wpd	300-400	late Trier ware, with white painted dot decoration with one band of rouletting
127.	C5133b	4000L	post		1			8	late Trier 3 rod wpd	300-400	late Trier ware, with white painted scroll decoration and a double band of rouletting
128.	C5153	4923 (L)	post		1			10	late Trier 3 wpd	300-400	late Trier ware, with white painted dot and scroll decoration
129.	C5150	4923 (FF)	post		1	1		20	late Trier? 3	300-400	late Trier ware beaker base
130.	C5151	4923 (FF)	post	160	1	1	8%	10	CC 4? rod		pale colour-coated fabric more likely to be a colour-coated variation of a late sigillata bowl, similar to Dr 49, but with a more simple curved rim; with bands of rouletting; not a common fabric or form

CP	construction pit
FF	final infill
L	infill with dark earth
PF	primary infill
S	shaft in-between both frameworks of double well

decoration code	start date	end date	decoration	form code	form
al	120	250	Black-burnished-type acute lattice decoration	1	flagons
bad	50	400	Barbotine decoration (under CC)	1/3	flagons/beakers
cgd	50	400	Cut glass decoration	2	jars
rcd	50	400	Unidentified roughcast decoration	3	beakers
rcd1	50	120	Sand/quartz roughcast decoration	4	bowls
rcd2	50	300	Clay pellet/grog roughcast decoration	4/5	bowls/dishes
rod	50	400	Rouletted decoration (incl. knife-trimming)	5	dishes
rpd	50	400	Red painted decoration	6	cups
std	50	400	Stamped decoration	7	mortaria
tbd	50	400	Thumbbed decoration	9	lids
wbad	180	300	White barbotine decoration	clv	closed vessels
wpd	270	400	White painted decoration (on late wares)	10	unidentified

## APPENDIX 12 - Marbled wares at the south-west corner site (By R. P. Symonds)

### 1. Description of the assemblage

A total of 195 sherds, representing a minimum of 32 vessels, measuring a total of 1.75 estimated vessel equivalents and weighing a 3451 g, are reported on in this section. The marbled-type wares include just three identified fabrics, *céramique à l'éponge*, Lower Rhineland marbled ware and Verulamium marbled ware, along with some unidentified vessels. The presence of Verulamium marbled ware is limited to two sherds, each weighing 11 grammes and both of uncertain identification (*sandy white fabric with reddish slip, very abraded*), but perhaps from the same vessel. A few representative fragments are catalogued in Table 48.

The largest category of the marbled ware assemblage, between about 46% (by EVEs) and 69% (by MNI), is composed of *céramique à l'éponge*. This ware, generally dated to the 3rd and 4th centuries (Tyers 1996b, 144; Brulet 2010a, 262), was made in western Gaul, probably in the region surrounding Poitiers (Raimbault 1973; Simon-Hiernard 1991; Sireix and Convertini 1997; Guitton 2012). This late production seems to have much in common with the late productions of Oxfordshire and Hadham in Britain as well as having some connections with productions in the Argonne (Barat 2011; Guitton 2012). All four of these late ware types are characterised by a quite varied typological range that includes some late samian forms, notably versions of Dragendorff forms 37, 38 (the most common) and 45, as well as flagons, beakers, bowls and dishes. At Oudenburg, the *céramique à l'éponge* occurs in a wide range of forms, although closed forms (flagons, beakers, jars/beakers and otherwise undistinguishable closed vessels) are very predominant. This seems to contrast somewhat with some other assemblages of the ware, notably one from the site of the Cité Judiciaire at Bordeaux, which furnished some 47 individuals (MNI), of which 45 were flanged bowls (versions of Dragendorff 38) and there were no closed vessels at all (Sireix and Convertini 1997, 322 and fig. 2). Closed vessels, including flagons and beakers, are present in the assemblages from the Poitiers region (Raimbault 1973; Guitton 2010) and in Île de France (Barat 2011), but clearly they are not the main forms. Only Guithon (2010) shows quantifications: in his histogram of general forms, open forms (various bowl forms and mortaria) reach 68.71%, dishes and platters reach 17.18%, but flagons and pichets account for just 14.11%.

*Céramique à l'éponge* begins to appear at Oudenburg in level 4, but 113 of the 131 sherds, or 86%, were found in the post-Roman levels. By other measures the percentage is closer to 80%, but generally it is not appropriate to present the percentages for all the marbled wares, since in most cases the total sums are too low for percentages to be useful. Two illustrated vessels (Fig. 49: 1-2) are probable representatives of *céramique à l'éponge*, although neither one is typical. Both are plain dishes, with a slightly thickened rim, similar to Raimbault 1973, Pl. 1, Forme II, Type B, 8.

The second most common marbled ware type is the Lower Rhineland marbled ware which can be generally dated from the middle of the 3rd to the early 5th century (cf. Brulet 2010b, 385 with references). This pottery was first described in detail by Oelmann (1914), and then divided into two categories by Hussong and Cüppers (1972), with a broader typology included in Gose 1950/1976 (the later forms being nos. 261 to 282). The ware's presence in Britain has been highlighted by Bird and Williams (1983). At Oudenburg it reaches almost 40% by weight, but not quite 16% by MNI. As *céramique à l'éponge* at Oudenburg, Lower Rhineland marbled ware occurs mainly in closed forms, especially flagons, but in this case, although there is virtually no quantified data for the ware, the most general typologies (notably Bird and Williams 1983 and Brulet 2010b) include no forms other than flagons and pitchers<sup>75</sup>.

Lower Rhineland marbled ware seems to be contemporary with *céramique à l'éponge* at Oudenburg. It occurs very largely in the post-Roman levels; just one sherd has been identified in level 4, with

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<sup>75</sup> In Gose 1950/1976 there are three two-handled bowls (nos. 274-6) in the category, but it is not clear if they really have the same fabric.

none in any other Roman level. Lower Rhineland marbled ware is represented here by three illustrated pieces: Fig. 49: 3-5. No. 3 is an example of the most common form, the disk-mouthed flagon; no. 4 may well be a flagon with spouted rim, but not enough of the rim was present to be able to suggest this in the illustration; no. 5 is a body sherd with white painted decoration.

Two body sherds of closed vessels have been identified as Verulamium Region marbled ware, each weighing 11 grammes. In both cases the identification is uncertain, and the sherds are residual in level 5 and the post-Roman levels.

Some nineteen sherds are listed as unattributed marbled ware. These occur in almost as much typological variety as *céramique à l'éponge*, although it is interesting to observe that here there are at least a few bowls, as well as one mortarium sherd (just 9 grammes), and some sherds of other open forms. Like the other marbled fabrics, the unattributed ware occurs mostly in the post-Roman levels. The one illustrated piece in this category, Fig. 49: 6, is the base of an open vessel with a broad footring.

## 2. Conclusions from the marbled wares

The marbled-type ware fragments at the Oudenburg fort occur first at fort level 4, although very limited, and are mainly predominant in the post-Roman and mixed levels. As this pottery category is mainly a late type, one can assume that the fragments in the post-Roman and mixed levels can all be attributed to the fort occupation, and more specifically can be assigned mostly to fort level 5.

Marbled wares are something of an anomalous category. Although the quality of the decorative effect of the marbled surface may vary considerably, it does seem to be enough to define this class of pottery. The types clearly have affinities with both samian and fine wares, and have many similarities with the wares produced in Oxfordshire, at Hadham and in the Argonne. If they had been included here in the fine wares report, *céramique à l'éponge* would have been the fourth most common fabric, and Lower Rhineland marbled ware would have been the eight most common (by sherd count). It seems fair to say that this makes these two marbled ware types somewhat more common at Oudenburg than they generally seem to be in Britain. This is probably to be explained by Oudenburg's position as a site mainly supplied by production sites in the Rhineland and Gaul. Apart from the very minor production at Verulamium, marbled-type wares do not seem to have been made in Roman Britain, nor do they appear to have established a market in Britain.

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	n	MNI	EVE	g	code	date	description
1.	C 5182	4000L-4923	post	200	2	1	0.13	36	EPO MA 5J	300-400	<i>céramique à l'éponge</i> marbled ware dish, similar to Raimbault 1973, Pl. 1, Forme II, Type B, 8
2.	C 5184	4000C.1-4000J	post	210	2	1		26	EPO MA 5J	300-400	<i>céramique à l'éponge</i> unattributed marbled ware dish, similar to Raimbault 1973, Pl. 1, Forme II, Type B, 8
3.	C 5181	2012	post	63	4	1	0.69	106	LOR MA 1D	300-450	Lower Rhineland marbled ware disk-mouthed flagon, similar to Bird and Williams 1983, fig. 2, no. 2, Gose 261/2
4.	C 5179	4923-4903-4000N-4976	post	110	23	1	0.09	587	LOR MA 1 WPD	300-400	Lower Rhineland marbled ware flagon, with white painted decoration, similar to Gose 277-282, except that the rim appears to be circular, rather than spouted – but less than 10% of the rim was recovered
5.	C 5877	4958	post		2			13	LOR MA CLV WPD	300-400	Lower Rhineland marbled ware closed vessel with white painted decoration (large dots)
6.	C 5183	7901Z/7908	5+post		1	1		48	MARB OPV WPD		unattributed marbled ware open vessel, base with broad footring; dark coloured paint dripping on exterior surface

Table 48: The illustrated marbled wares, representative for the types attested at the Oudenburg fort. Catalogue numbers refer to Fig. 51.



Fig 49: The representative marbled ware vessels of the south-west corner site.



## APPENDIX 13 - Coarse mortaria at the south-west corner site (By S. Vanhoutte, S. Willems and R. P. Symonds)

### 1. Introduction to the coarse mortaria assemblage (by S. Vanhoutte)

At the south-west corner site, 1068 pottery sherds belong to the coarse mortarium group, accounting for a number of at least 248 individuals (excluding samian and fine ware mortaria)<sup>76</sup>. No stamps are present, which is not surprising given the occupation mainly covering the 3rd and 4th centuries. When the total Roman level pottery is considered, the mortaria only represent 0.85% of the total sherd count, 1.35% when seen in MNI. This difference can easily be explained by the robustness of the vessels. The coarse mortaria assemblage is characterised by many large pieces; these rather thick-walled vessels, mostly displaying a very hard fabric, are evidently less breakable than most of the samian vessels and the fine wares, resulting in less fragments for one individual than the latter categories. In this respect, it is even more striking that several coarse mortaria appear to be scattered over different (fort) levels, as the high number of cross joining sherds testify to (Fig. 50).

A thorough study of the coarse mortaria, based on fabric analysis, is most significant, not so much for their chronological value, but especially from an economic perspective. The variety in fabrics is representative for the diversity in the supply to the Oudenburg fort. The coarse mortaria embody the wide trade network the Oudenburg fort was part of and reveal changing supply routes throughout its occupation history. The assemblage is particularly interesting since it comprises both Romano-British supplies as supplies from the northern continental provinces.

The 1068 mortarium fragments, accounting for at least 248 individuals, are proportionally more or less evenly distributed throughout the Roman level. At level 1 and fort level 2, they account for respectively 2.76% and 2.03%. From fort level 3 onwards, the proportions decrease a little, reaching just over 1%, with respectively 1.28%, 1.25% and 1.32% for fort levels 3, 4 and 5 (Table 49).

When the assemblage is considered on its own, its large share within fort level 4 is striking (Fig. 51). Compared with the total number of mortarium individuals, 25.4% can be assigned to fort level 4; when only their number from the Roman level is considered, the 43.2% (or 63 MNI) at fort level 4 stands out even more. The strong increase at fort level 4 in comparison to fort level 3 is not so remarkable on its own. Fort level 4 covers a much longer time-span than the preceding forts. However, when studied contextually, and considering the functional significance of this part of the fort during fort period 4 as an area of workshops, this large share of mortaria is rather remarkable and less easy to explain. Their spatial distribution at fort level 4 shows no specific clusters. It is worth drawing attention to the samian mortaria, also well-present in the workshop area (Fig. 51). Very striking are the seven samian mortarium individuals in the context OS 7949, the central depression at Unit I belonging to the first phase of this workshop Unit I; this context was rich in brooch production waste (see Chapter II, Section II.4.6.2). It has been suggested that the samian mortaria were brought to the workshop for repair using lead joints. Could this also be an explanation for many of the coarse mortaria in this fort level? Eight coarse mortarium fragments show repair holes<sup>77</sup>; four of them are attributed to fort level 4. Another explanation is suggested below.

The MNI count of the coarse mortaria decreases at fort level 5 to 44 MNI (30.1% of the mortaria from the Roman level). This is not surprising given the function of the south-west corner at that

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<sup>76</sup> This section does not include three sherds (2 MNI; 0.02 EVEs; 70 g) of Hadham red ware or twenty sherds (13 MNI; 0.74 EVEs; 376 g) of Oxfordshire red/brown colour-coated ware that are included in the fine wares section (no other mortaria were recorded among the fine wares), nor does it include any Dragendorff 43 or 45 mortaria or their later counterparts that were observed in the samian.

<sup>77</sup> Apart from the fragments from fort level 4, one fragment from fort level 3 (Plate CXLIX: 38), two from fort level 5 and two recovered from the post-Roman/mixed levels show one or more repair holes.

time. With a bath house at level 5A and including compounds to keep animals, probably horses, at level 5B, the mortaria at this fort level will not have been used on the spot, but should be considered as waste from nearby fort locations.

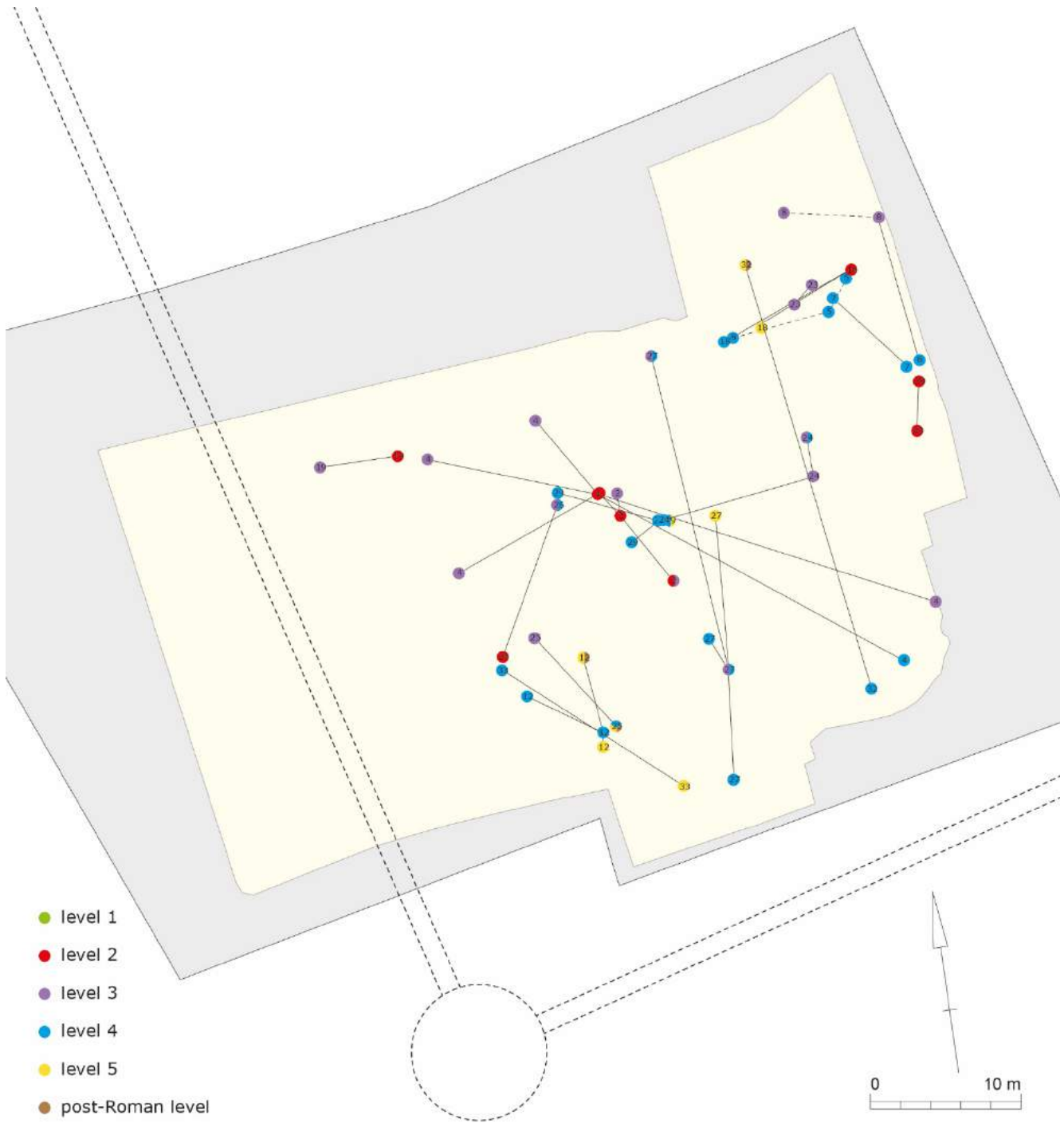


Fig 50: Visualisation of the lateral cross joining coarse mortaria fragments stretching over a distance of at least 2 m.

As already mentioned, the assemblage is characterised by a high number of cross joining sherds (Fig. 52). After detailed puzzling of the fragments, no less than 45 cross joins can be counted (consisting of two or more joining sherds), including at least 37 vessels considered as MNI. The map shows the cross joins covering distances of more than 2 m, demonstrating the scattering of some individuals over different levels and the considerable movements these vessel fragments



underwent<sup>78</sup>. This is remarkable bearing in mind their rather heavy weight and the size of most of the fragments. It emphasises even more the impact of the building activities at every fort level, as already indicated by the many samian ware cross joins.

In first instance and from a functional point of view, one would assume that the coarse mortaria should be considered together with the samian mortaria, as they were both intended for grinding purposes. However, it is likely that not the same grinding function should be attributed to them. Based on written sources and residue analyses, coarse mortaria might have been used for the preparation of medicine, face creams or the grinding of pigments, for making cheese, dough or seasoned sauces, and perhaps even the skimming of milk (cf. Cramp *et al.* 2011; Hilgers 1969). A possible functional differentiation could also have been in play between the vessels with horizontal and hammer-shaped rims on the one hand and the mortaria with vertical rims on the other hand. Vertical rims would have been very suitable for the preparation of liquids. Horizontal and hammer-shaped rims enhanced the grip and would have been ideal as (milk) tub or basin for beating with a stamper, a use to which the often abraded interior on Tongeren mortaria may testify (Vanderhoeven 2014, 37, with references to Hilgers 1969, 225-227, 248-249 and Rottländer 1973). Abraded interiors are also common in the Oudenburg assemblage.

Inspired by the burnt marks on the rim and around the spout of several mortaria found at Tongeren (site Sacramentstraat), Vanderhoeven has however yet suggested another function as an explanation for the large amounts of mortaria at settlement sites. The large numbers of these vessels indicate that they were obviously employed as a daily kitchen tool. Vanderhoeven relates them to the processing of cereals; after roasting, cereals had to be beaten to eliminate the chaff and a mortarium would have been ideal for this (Vanderhoeven 2014, 36-37). This function could very well fit in for fort period 4 and would explain the large share of mortaria in the workshop area. Layers full of charred cereals and the many quern fragments at this level, were already related to cereal processing, possibly at a nearby location just outside the excavation area since at the site itself hardly any chaff remains were found (cf. Chapter II, Section II.4.6.2.c). Of the 374 mortarium fragments found at fort level 4, 188 are burnt, completely or partially, but in most cases this can be explained by post-depositional burning as many of them were recovered from fire layers. Three fragments of different mortaria stand out with a locally burnt interior. More examples with local burning come from later levels. From fort level 5 four individuals can be mentioned: three with the interior completely burnt with two of them covered with soot and one burnt mortarium with intense burnt, vitrified traces on the inside of the rim. In the post-Roman and mixed levels, two individuals stand out: one with only its rim collar burnt, one with heavily burnt rim with the surface partly vitrified. Even from level 1 a mortarium with burnt lip and upper part rim has been recovered, and one individual from fort level 3 shows a burnt rim. The local burnt traces on these mortaria could be related to the roasting of cereals; however, no certainty can be obtained from the material. A function within the processing of cereal would be in line with the increased number of coarse mortaria at this level. Therefore, it is very well possible, but until now hard proof is lacking to confirm our assumption.

In contrast to the coarse mortaria, the number of samian mortaria increases constantly throughout the Roman level (Fig. 51). While they are not important at level 1 and hardly more significant than their coarse counterpart at fort level 2, they outnumber the coarse ones from fort level 3 onwards. As already mentioned in the samian study, the specific function of samian mortaria is still open to debate. Functional possibilities such as making milk products, like curds, whey, yoghurt, cheeses, are suggested; others however believe in an industrial or even ritual use of samian mortaria, and an evolution to a more multi-purpose vessel (Willis 2004, section 8.4.4, with references).

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<sup>78</sup>Evidently, the individuals in question are (only) counted in in the earliest level.

coarse mortaria (n: 247) vs samian mortaria (n: 327) (MNI)

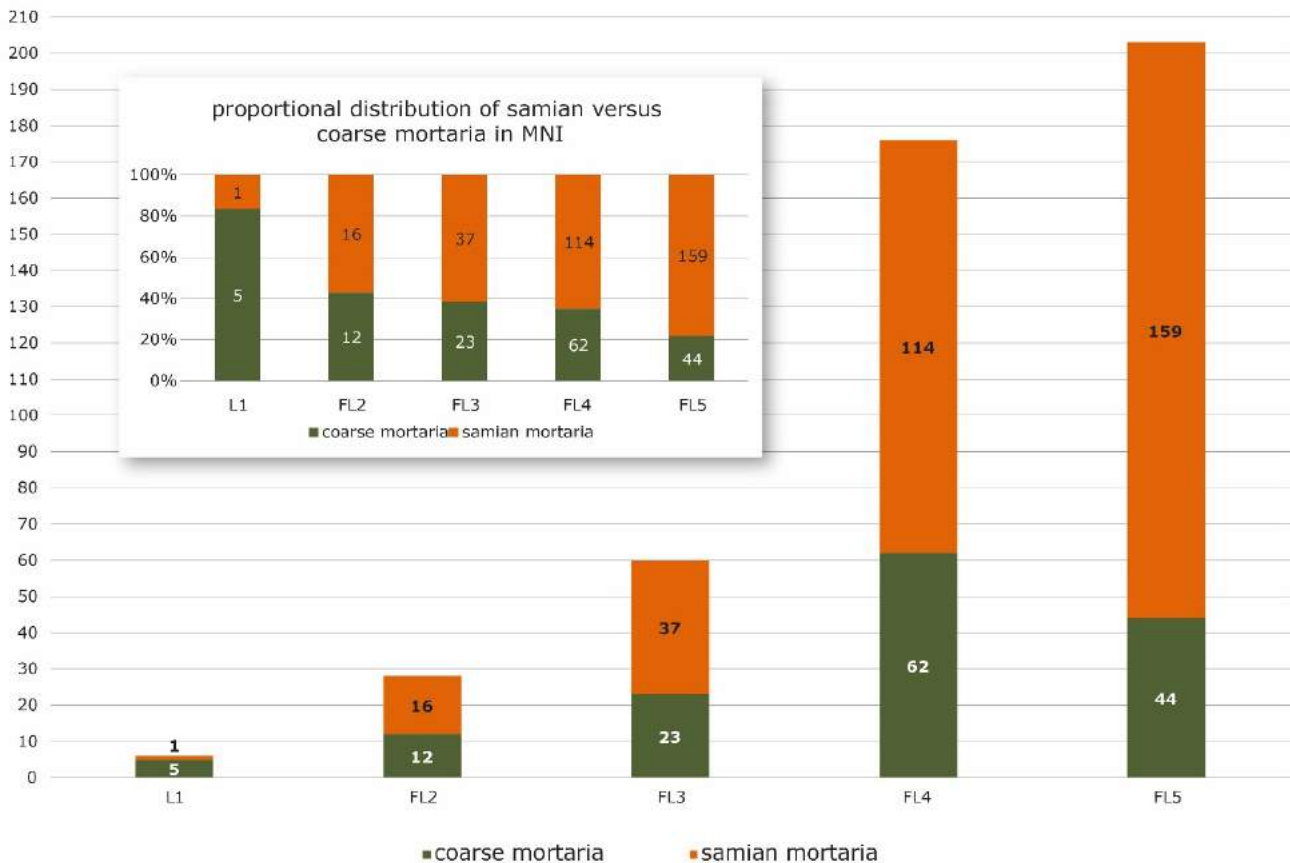


Fig 51: Distribution of the coarse mortaria versus the samian mortaria in the Roman level at the south-west corner site, according to the stratified evidence, based on MNI.

An overview of the fabrics demonstrates the wide variety of the Oudenburg mortaria (Table 49). Rare examples originating from the Champagne, Rhône and Noyon regions only represent casual imports accounting for a few MNI. The supply was largely dominated by only a few major production centres. When excluding the rare imports mentioned above, the presumed regional mortaria and the unattributed examples, the Soller mortaria, accounting for 63 individuals, stand out with 28.1% of the remaining MNI of 224. They are closely followed by other productions from the Rhine-Meuse-Eifel region (23.7%). A significant group of mortaria, representing 20.5% of the mortaria MNI, is characterised by white grits. Their origin is uncertain but is likely to be searched in *Britannia*. They represent both red-ware and white-ware mortaria, standing for different fabrics which seem however closely related. The specifically-identified Romano-British mortaria comprise Lower Nene Valley White ware, Oxfordshire white ware, Oxfordshire white-slipped ware and one Verulamium white ware mortarium. They account for 8.1% of the mortarium MNI or 20 individuals. They can be completed by five more individuals that are identified as being Romano-British without being able to be more specific. The Bavay-Famars mortaria, with 37 MNI or 14.9%, represent another significant region, though only supplying in moderate quantities.

production	L1	FL2	FL3	FL4	FL5	POST& mixed	TOTAL	%MNI
BAVAY-FAMARS	2	7	7	9	3	9	37	14,9
CHAMPAGNE				1		1	2	0,8
NOYON				1		1	2	0,8
RHÔNE VALLEY		1					1	0,4
NOYON/RHÔNE						1	1	0,4
LNV WW			2	3	1	1	7	2,8
OXF WW				6		5	11	4,4
OXF WS						1	1	0,4
VER MOR				1			1	0,4
British (?)			1	1		3	5	2,0
mortaria with white grits, Romano-British origin (?) (fabrics 1, 2, 3, 4, 6, 8)				3	7	36	46	18,5
mortaria with white grits, regional origin (?) (fabrics 5 and 7)				1	3	7	11	4,4
SOLLER		4	9	17	14	19	63	25,4
RHINE VALLEY	1		3	15	12	14	45	18,1
MEUSE VALLEY				1		1	2	0,8
EIFEL	1				2		3	1,2
RHINE-MEUSE-EIFEL	1			2			3	1,2
undet.				2	2	3	7	2,8
TOTAL	5	12	22	63	44	102	248	100

Table 49: The attested coarse mortaria productions at the south-west corner site, based on MNI.

Since the value of this study focusses on the economic importance of the diversity in mortarium imports, rather than on their chronological significance, the following analysis of the mortarium assemblage is structured according to fabric groups. Conclusions are drawn based on the minimum number of individuals (MNI), defined by unique rim fragments.

## 2. The Bavay-Famars mortaria (by S. Willems)

In total, 126 mortaria sherds, accounting for 37 MNI, are identified as coming from the south-Nervian territory, more specifically from the kiln sites situated near/at Bavay (the *civitas* capital), namely Pont-sur-Sambre, Famars and Bavay itself.

Soon after the capital's creation, production of flagons and mortaria in a cream calcareous fabric started at Bavay. Recently, a section of the kiln site has been excavated, giving evidence for pottery activity from the Augustan period onwards (Willems 2012). Later, the production centre was moved to two of its economic satellites, namely Pont-sur-Sambre for the production of mortaria, and Famars for flagons. The abandonment of the craftsman area at Bavay has been suggested for a long time (Loridant 2001), and new data from Bavay confirm this hypothesis. Subsequently, by the end of the 2nd or the beginning of the 3rd century, Pont-sur-Sambre lost its importance. The potters probably moved to Famars where the production of mortaria continued. Next to flagons, also mica-dusted wares and a panoply of reduced wares for cooking and presentation, were now produced at these potteries.

The difference between these production centres, all three using the same calcareous clays, is evidenced by combining form and fabric variants, and their evolution can be recognised in the Oudenburg material.

The earliest examples from Bavay show a very sandy fabric; occasionally even heavily tempered with red grog although this is rather rare. The finishing of the base is neglected and its rim is heavy, with a rounded inner lip (bead rim) and with flint scoring on the flange.

The Pont-sur-Sambre examples are clearly very standardised with a bead rim that is flattened and very regular. Different rim variants exist, well described by Loridant and Ménard (2002). The fabrics are also standardised, well-fired, with well-sorted quartz, of same size, form and colour (for more detailed fabric descriptions: Willems 2005). There is no scoring on the flange, giving a well-finished appearance to the rim. The wall fragments show clear ribs on the outside.

At Famars, where production probably started by the end of the 2nd century, the mortaria are distinguishable by their soapy fabric. They took over the standardised form from Pont-sur-Sambre, suggesting it might have been the same potters who migrated, but they used another variant of

the calcareous clay, namely a washed soapy version. The production of soapy wares is also known at Bavay, as examples of Gallo-Belgian wares show, although this technique was not applied for the production of mortaria. The soapy variant is totally absent in the kiln wastes found at Pont-sur-Sambre. At Famars, though, the presence of this washed variant is confirmed by the wastes of mica-dusted pots from one of the kilns at Famars-Technopôle (kiln 1381/1382) (Willems and Borgers *forthcoming*). The same fabric was probably used for the local production of standardised mortaria imitating the Pont-sur-Sambre types, as examples from consumption contexts at Famars demonstrate (Willems *et al.* 2017b). From the 3rd century onwards a production is evidenced by the wasters of kiln 5135. By that time, a new form was adopted, namely the typical 3rd-century type with high inner bead VV352-353.

The mortaria from Oudenburg reflect this evolution in the production, and three fabric groups have been identified (Table 50). Very small differences exist and there are several subvariants, but they all clearly belong to the Bavay-Famars region. A fourth fabric group remains unidentified. The type spectrum of the Oudenburg Bavay-Famars group is rather homogeneous, with different types of the curly rim type. The type VV 352-353 is represented by Plate CXLIII: 1-13; Plate CXLIII 14-23 can be identified as type VV 349-350. The mortaria examples Plate CXLIII 24-26 are close to VV 349.

Fabric group 1 (cf. Table 50) consists of mortaria with a sandy fabric and is represented in the Oudenburg assemblage with eighteen fragments, accounting for six MNI. Two subvariants can be distinguished, namely the Pont-sur-Sambre sandy fabric and the Famars laminar sandy fabric. Four mortaria are imported from the Pont-sur-Sambre kiln site, as their clay and form suggest. As described above, the fabric contains well-sorted quartz, and small black iron ore or red inclusions as well as foramina. The fresh break is neat, because of the well-sorted inclusions, and very hard. The colour varies from cream to pink. They appear in (fort) levels 1 and 2, which is very logical considering their production period (respectively examples Plate CXLIV: 20 and 15). Two examples show a 3rd-century rim (type Vanvinckenroye 352–353); they were found respectively in fort level 3 and the post-Roman level (examples Plate CXLIII: 1 and 10). They have a laminar, hard fabric with long voids, and quartz inclusions. Because of their laminar character, they were probably produced at Famars, and one has to bear in mind that production at Pont-sur-Sambre ceased before the middle of the 3rd century.

Fabric group 2 (cf. Table 50) is also sandy, faintly laminar with long voids, but containing amber coloured quartz. Its surface feel is soapy but very hard. It is closely related to the Famars subvariant of group 1 but the quartz changes to orange or amber, reacting to the iron oxides present within the fabric. It is probably the same clay combination, with the quartz having reacted, maybe due to firing conditions. Other inclusions are present, such as red grog, black spots, iron ore or foramina. The colour of the fresh break and the surface is yellow to pinkish. This fabric group 2 is represented by ten fragments, accounting for five MNI. Most of them have the Pont-sur-Sambre form. Three MNI belong to fort level 2, one to fort level 3 and one to fort level 4; a base fragment was found at level 5+post. These mortaria probably represent the first variants produced at Famars, imitating the Pont-sur-Sambre form VV 349-350 (Plate CLIV: 21-23), but with a laminar soapy fabric still containing an amount of quartz.

fabric	brief description	MNI	sherd count
<b>BAFA fabric group 1</b>	sandy calcareous fabric with well-sorted quartz, sometimes with abundant iron oxides, well-fired and neat matrix	6	18
<b>BAFA fabric group 2</b>	probably the same fabric as group 1 but with amber coloured quartz, because of abundant iron oxides present in the clay; layered aspect, close to soapy wares	5	10
<b>BAFA fabric group 3</b>	soapy ware, the same clay is used as with the sandy fabrics, but the clay has been treated and the larger inclusions have been removed; sometimes rare quartz inclusions are present and some small red dots (iron ore) but the overall aspect is fine and powdery or very smooth	24	94



fabric	brief description	MNI	sherd count
<b>BAFA? fabric group 4</b>	group of mica rich fabrics, put in the Bavay-Famars group on first sight, though the fine granular fabric with silt-sized or even smaller grains is probably not imported from the Bavay region		2

Table 50: The attested Bavay-Famars fabrics at the south-west corner site.

Fabric group 3 (cf. Table 50) comprises the soapy mortaria with a fabric containing no quartz inclusions or less than 1% of quartz. Foramina, red grog and iron oxides are visible, but very rare. The matrix as well as the surface are extremely neat, powdery and with a soft feel, reflecting probably lower firing conditions as well, as is the case for the mortaria from kiln 5135 at Famars (fabric 1, analysis B. Borgers in Willems and Borgers 2015). Fabric group 3 is represented by 94 fragments, accounting for 24 MNI. Most of the Oudenburg examples come from fort level 3 and 4 contexts. The 3rd-century type VV 352–353 is still popular (Plate CXLIII: 3, 5, 6, 12, 13), but a new type emerges as well, occurring from fort level 4 onwards, with a long flattened rim and small inner bead (Plate CXLIV: 24–26). This form, absent in the consumption contexts from Famars, is peculiar. P. Herbin (Département du Nord) knows of similar examples coming from late Roman contexts from Bavay; a date of AD 260–280 was suggested by Herbin for these contexts (pers. comm.). The form is close to the VV 349 type, but the flange is long and flat and the surface is delicately burnished. Two hypotheses are credible: since its absence at Famars, must we consider a production rebirth elsewhere, for instance at Bavay, or should this type be dated to the 4th century instead of the end of the 3rd? The Oudenburg contexts suggest the first option, since the number of individuals at fort level 4 is too consistent to be intrusive material from later levels. Still, its absence at Famars-Technopole during the period AD 260–320, when large quantities of pottery were consumed, is most striking.

A fourth fabric group (cf. Table 50), only accounting for two fragments (no MNI), has been defined because of the shiny matrix of the fabrics containing white mica. The precise provenance is uncertain, although its overall surface feel and fabric colour are close to Bavay-Famars productions. However, the matrix contains silt-sized quartz and is less calcareous. Only one broken rim fragment (not illustrated) belongs to this group; it was found in a mixed 4+5+post level.

In all, most of the mortaria from the Bavay-Famars group belong to the third soapy fabric, typical of the 3rd and 4th centuries (98 sherds, for only ten sherds in fabric 2 and eighteen in fabric 1). Fabric 1, probably originating at Pont-sur-Sambre, occurs from level 1 to the post-Roman levels. Fabric 2 appears from fort level 2 onwards. 'Unfortunately', the dominating fabric 3 is also found throughout all levels (two in fort level 3, three in fort level 3+4 and three in fort level 4; only body fragments were found in fort level 5), which makes an analysis of the chronological distribution of the Bavay-Famars products at the Oudenburg fort difficult.

### 3. Some Noyon imports (by S. Willems)

Seven mortaria fragments, of which only two rims, are identified as imported from the Noyon region. The fabric is very close to the Bavay-Famars region products, because of the use of a highly calcareous clay as well, but the position and the amount of quartz is different. In most cases, the Noyon fabrics do not contain abundant quartz inclusions; the present quartz grains are of medium size and are hidden in the matrix. Abundant rounded iron ore is characteristic in these fabrics.

The Noyon region products were mainly popular during the 1st and 2nd centuries, continuing in the first half of the 3rd century (Dubois *et al.* 2009), but were above all exported towards the west, to *Britannia*. The Bavay-Famars products blocked the distribution to the north, and only in rare cases they have been found in the northern part of North-Gaul (see Chaidron *et al.* 2010 for distribution maps of both Noyon and Bavay-Famars productions).

While the identification of the Noyon fabrics is difficult because of their resemblance to the Bavay-Famars examples, clearly a different repertoire was used. The first phase of the Noyon productions imitates the vertical rims of South-Gaul, as also the first Bavay examples did, but when the productions became more developed locally, a different register of forms was chosen. The Oudenburg examples clearly represent late Noyon forms. The example (Plate CXLV: 28), found in a mixed level 1>4, corresponds to Vendeuil-Caply types 13/14 (Piton and Delebarre 1993), a form popular at the end of the 2nd - beginning of the 3rd century. Characteristic are the ribbed exterior walls and the flange positioned in a 45° angle with a rounded extremity. Based on its form, the Oudenburg mortarium most probably belongs to level 1 or 2. The second individual is a Vendeuil-Caply type 10 mortarium, with a heavy rounded flange (Plate CXLV: 29), found in the post-Roman level. This is also a form most typical of the end 2nd - first half of the 3rd century (Piton and Delebarre 1993).

#### 4. Rhône Valley imports (by S. Willems and S. Vanhoutte)

Twenty-three mortarium fragments, with only one MNI, originate from the Rhône Valley. The calcareous clay is very close to the Noyon fabrics, but flakes of brown mica are a distinguishable characteristic. The form shows a long horizontal flange, close to Haltern 60 or Oberaden 73 (Gose 455) (Plate CXLV: 30). This type is typical of the 1st century. The twenty-one fragments of this individual were found scattered through the Roman level; the joining fragments were recovered from no less than six contexts, one belonging to fort level 2, four contexts of fort level 3 and one level in the post-Roman level. Part of the mortarium was used as material to construct a hearth at fort level 3 (OS 70950). The earliest context to which fragments of this mortarium belonged, can be assigned to fort level 2, but already at this level this individual should be considered as a residual item, dug-up from a pre-fort structure.

#### 5. Champagne mortaria (by S. Willems)

Four sherds for one individual originate from the Champagne region and were found in fort levels 3 and 4 (not ill.; only small rim fragments preserved). They are easily recognisable by their white kaolinite rich, shiny clay with small quartz inclusions<sup>79</sup> and their heavy hammer shaped rim and ribbed walls. Several fabric variants as well as trituration grit variants (from abundant white grits to examples with only reddish grits) exist. The Champagne region products, after a first exporting period of Gallo-Belgian fine wares during the 1st century, became slightly more popular again during the 3rd century. Examples of coarse grey wares and mortaria are often found on consumption sites of that particular period in Northern Gaul (Biegert *et al.* 2004).

#### 6. Soller mortaria (by S. Vanhoutte)

The Soller potteries, located at Kreis-Düren (to the south-west of Cologne), were the main suppliers of coarse mortaria to the Oudenburg fort, accounting for 282 fragments, representing 63 MNI or 25.4% of the mortaria MNI. They are characterised by a coarse (sometimes very rough), very hard fabric, with a hackly fracture, sometimes clearly layered, rich in large quartz inclusions which also protrude through the surface giving it a pimply feel; some of the fabrics contain red slate inclusions.

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<sup>79</sup> For a detailed fabric description: see Biegert *et al.* 2004.



The inner surface shows scattered trituration grits that can reach sizes up to 3 to 4 mm (cf. Tomber and Dore 1998, 79-80). The Oudenburg examples display a variety of fabric and surface colours, from whitish, greyish to yellowish and orange. All but one of the Oudenburg individuals represent the collar-rimmed form, corresponding to VV 336 and mainly VV 337. One rim fragment belongs to a very large mortarium with horizontal, curly rim.

The mortaria at Oudenburg occur throughout the Roman level. Absent at level 1, they are present at fort level 2 with four MNI, nine are counted for fort level 3, seventeen for fort level 4 (see for example Fig. 52) and from fort level 5 fourteen individuals are recorded.



Fig 52: The coarse mortaria from the large waste-pit OS 4980 of fort level 4. All but the large Soller mortarium rim at the bottom right (from the secondary filling of the waste-pit) belonged to the primary waste infill. The mortarium spectrum demonstrate the dominance of the Rhineland supply, with a complete vessel and a complete profile from Soller, a complete mortarium and a burnt, complete profile from the Rhine-Meuse-Eifel region, and another burnt, complete profile from the Rhineland. The two body fragments to the right belonged to an Oxfordshire White Ware mortarium.

According to D. Haupt (1984, 413-414), production at Soller can be largely dated from c. AD 150 to 250. For the collar-rimmed mortaria, she mentions that they were still scarcely in use until the end of the 3rd century, although she also points to some occurrence even in the 4th century (1984, 445). However, examples of collar-rimmed mortaria from Soller were found in late 3rd- and beginning of the 4th-century contexts at Lincoln (UK). Nos. 1442 and 1444 (Darling *et al.* 2014, 164, fig. 136) even belonged to mid-4th-century assemblages. Besides, another collar-rimmed example, close to the Soller ones and of the same date, was identified as a Speicher one, indicating the close relationship between these Rhineland kilns. The Lincoln examples clearly show a continuation of production, long after the production date suggested by Haupt. They also demonstrate that other kiln sites near Soller produced the same forms. With fourteen individuals at fort level 5, and at least another nineteen (for 46 fragments) in the post-Roman and mixed levels, this assemblage seems too significant to be explained as mere residual material from earlier levels. It is likely that the Oudenburg assemblage confirms the later dates revealed at Lincoln.

Haupt (1984) defined eight rim types within the collar-rimmed form (Haupt 1984, Taf. 183: 1-8). Only Haupt type 3 and 6 are absent from the Oudenburg assemblage. The other rim types seem to

occur randomly throughout the Roman level and do not reflect any chronological evolution<sup>80</sup>. One can wonder whether much significance is to be attached to these minor rim differences. Most of the rims display an exterior groove near the top; seven individuals lack this groove and show a smooth collar instead (nos. 8, 12, 14, 17, 21, 28, 37). For all these Soller mortaria, diameters range between 24.0 and 39.4 cm.

Only one individual (Plate CXLX: 39) shows a large horizontal, curly rim that can be identified as Haupt (1984) Taf. 181: 1. This rim belonged to a very large mortarium, with a diameter of 53.2 cm. It was found on top of the primary fill of the large waste-pit OS 4980 and could only be generally attributed to level 4+5. This rim type is one of the characteristic rims of the VERECVNDVS workshop (cf. Haupt 1984, 443), the Soller potter known by the many stamps that survived on mortaria at this site. His production was dated by Haupt to AD 150-250 (Haupt 1984, 414). Again, at Lincoln, these large Verecundus-type mortaria occur until the beginning of the 4th century (Darling *et al.* 2014, 165, Fig. 137, no. 1452). The find context of the Oudenburg mortarium fits in well with a late 3rd-early 4th century date.

Haupt revealed that the Soller potters did not supply the Rhine army and mainly focussed on smaller markets. Some specialties however, like the very large VERECVNDVS mortaria, were exported over very large distances, with *Britannia* as an important consumer (Haupt 1984, 416). Several examples were found in London, at the harbour site Saint Magnus Quay (Richardson 1986) and on numerous other sites, like the one mentioned for Lincoln (Darling *et al.* 2014). The Oudenburg fort is situated on the same east-west axis, but in contrast to *Britannia*, was supplied mainly by the moderately-sized mortaria. Only one such extremely large, presumed VERECVNDVS, example has been found at the Oudenburg fort.

## 7. Other mortaria from the Rhineland and the Rhine-Meuse-Eifel region (by S. Vanhoutte)

A large share of 141 fragments, accounting for 45 mortarium individuals (18.1% of the total MNI), can only be generally attributed to the Rhineland. One individual belonged to level 1 (Plate CL: 51), none at fort level 2, and three at fort level 3 (Plate CL: 49 and 53). From fort level 4 onwards they are well-represented: fifteen individuals at fort level 4 (Plate CL-CLI: 40, 41, 50, 55, 56, 59), twelve at fort level 5 (Plate CL-CLI: 42, 43, 45, 52, 54) and fourteen MNI recovered from the post-Roman/mixed levels (Plate CL-CLI: 44, 46, 47, 48, 57, 58). Also at Lincoln, a wide range of Rhineland fabrics was observed amongst the mortaria. They were mainly found in mid- to late-3rd century contexts (Darling *et al.* 2014, 162). They indicate that besides the Soller potteries other workshops were active in the Rhineland producing mortaria and distributing them widely.

The Rhine mortaria are all collar-rimmed, of type VV 336 or 337, but they display a lot of variation. Small- and moderately-sized examples are present. The defined diameters cover a size range from 22.2 cm (example 45) to 33.2 cm.

Several rims are similar to the rim types defined by Haupt; however, more variation than within the Soller group can be noticed. While some rims display the VV 336 rim type (Plate CL: 40-41),

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<sup>80</sup>Haupt type 1 occurs only once, at fort level 3 (Plate CXLVI: 1). Haupt type 2 is present two times, at fort level 4 (Plate CXLVI: 2) and in the post-Roman/mixed level (Plate CXLVI: 3). Three individuals show Haupt type 4: one at fort level 2 (Plate CXLVI: 4) and two at fort level 4 (Plate CXLVI: 5 and 6). Rim type Haupt 5 occurs two times, once at fort level 4 (Plate CXLVI: 7) and once in the post-Roman/mixed level (Plate CXLVI: 8). Haupt type 7 is represented once, at fort level 4 (Plate CXLVI: 9). The latter is characterised by a very white fabric, containing some red slate inclusions. Haupt types 8 and 9 are best represented with respectively eighteen and thirteen MNI. Haupt 8 occurs at fort level 2 (twice: Plate CXLVII, 10-11), at fort level 3 (four times: Plate CXLVII, 13-16), at fort level 4 (twice: Plate CXLVII, 17-18), at fort level 5 (twice, not ill.) and seven times in the post-Roman/mixed level (four MNI illustrated: Plate CXLVII-VIII, 19-22). Two individuals can only be generally assigned to Haupt type 8-9 (one at fort level 3 and one at fort level 5, respectively Plate CXLVIII, 23 and 24). Haupt type 9 occurs at fort level 3 (twice: Plate CXLVIII, 25-26), at fort level 4 (three times: Plate CXLVIII, 27-29), at fort level 5 (four times: Plate CXLVIII-IX, 30-33) at in the post-Roman/mixed level (four times: Plate CXLIX, 34-37).

many recall the Haupt rim types (Plate CL: 42-51) and some display a pronounced hammer shaped rim profile (Plate CLI: 52-58), some with a prominent in-turning lip (Plate CLI: 57-58). The hammer shaped collar-rimmed individual (Plate CLI: 52) is very similar to no. 1441 of the Rhineland mortarium group defined at Lincoln (Darling *et al.* 2014, 162 and 164: Fig. 136: no. 1441). The authors compared it with a closely paralleled individual from the New Fresh Wharf site at London (Richardson 1986, 110: 1.70), where it was concluded that these collar-rimmed mortaria were made at Speicher and at Urmitz, and possibly also at other Rhineland kilns. While Urmitz produced in the 2nd and 3rd centuries, Speicher continued production in the 4th century. The no. 1441 mortarium at Lincoln was found together with pottery from the mid-4th century (Darling *et al.* 2014, 162). Furthermore, in the Oudenburg assemblage, the mortarium (Plate CLI: 59) from fort level 4 is remarkable by its long pending collar in combination with the elevated connection to the wall.

Eight mortarium fragments, for three MNI, are recognised as Eifel products (Plate CLI: 60-62). The three vertical rims show a pronounced hammer shaped profile, closely related to those of the Rhineland group. They belong to level 1 (Plate CLI: 60), a mixed level 4+5 (Plate CLI: 61) and fort level 5 (Plate CLI: 62). The base fragment (Plate CLI: 63) was found in the post-Roman level. The individual of level 1 (60) shows a fabric with red grog and some volcanic glass inclusions. Its trituration grits are remarkable as they show a large variety in size, colour and composition. The fabric of the base fragment (63) is very similar to that of the Speicher coarse oxidised wares.

Only eight fragments, for two MNI, originate from the Meuse Valley, based on their fabric rich in quartz and iron oxides (cf. Willems 2005, 30). Rim fragment (Plate CLI: 64) was found in a mixed level 3+4; the heavy curly rim with small upstanding lip (Plate CLI: 65) was recovered from the post-Roman/mixed level. Large-scale pottery production has been attested at Heerlen, but other production centres, like *e.g.* Tienen (just outside the actual Meuse region), may also have exported such wares. Mortarium (64) comes close to type MOR-HEERL-M8 from Heerlen which can be equated with VV 350 (Van Kerckhove *et al.* 2014, 267, 266: Fig. 8); mortarium (65) approaches type MOR-HEERL-M6 that is similar to VV 345-346 (*idem*, 265, 266: Fig. 8). The MOR-HEERL-M8 type has been dated at Heerlen *c.* AD 130-170, the MOR-HEERL-M6 type *c.* AD 200-230. The pottery production at Heerlen covers a time-span from around AD 70 until around AD 230 (Van Kerckhove *et al.* 2014, 275).

Twenty-one mortarium sherds can only be generally attributed to the Rhine-Meuse-Eifel region. They account for three MNI, with one complete vessel broken into twelve fragments (Plate CLII: 67). One rim fragment with curly collar and upstanding lip (Plate CLII: 66), belongs to type VV 348, a predominantly 2nd-century type (Vanvinckenroye 1991, 74), which is in line with its find context in level 1. The two other individuals (Plate CLII: 67-68) were found in the fill of the large waste-pit OS 4980 of fort level 4 and show the collar-rimmed type VV 337. Both were heavily burnt which makes it impossible to specify their origin. Two body fragments within this Rhine-Meuse-Eifel group are distinctive because of the red slate occurring in the trituration grits.

## 8. Romano-British imports (by R. P. Symonds, with fabric descriptions by S. Willems)

Within the mortarium group, some 405 sherds have been identified as either Romano-British in origin, or likely to be Romano-British or an imitation inspired by the Romano-British productions. In total these represent a minimum of 82 individuals (MNI). However, the specifically-identified Romano-British mortaria are not numerous with twenty MNI (8.1% of the total MNI count); they comprise Lower Nene Valley White ware, Oxfordshire white ware, Oxfordshire white-slipped ware and one Verulamium white ware mortarium. The presumed Romano-British mortaria and imitations are discussed in the next section. Some twelve fragments (five MNI) have been assigned to a non-specific Romano-British category. These include four illustrated rims (Plate CLV: 22-25).

### *8.1. Lower Nene Valley white ware mortaria*

Representing only a small assemblage of 27 fragments, accounting for seven MNI, the Nene Valley white ware mortaria are defined by their relatively fine whitish fabric, with black flint grits, and a series of distinctive forms. The most detailed typology can be seen in Hartley and Perrin 1999, figs. 77-8, although some of the Oudenburg vessels seem to find closer parallels in the Colchester assemblages (Symonds and Wade 1999). In particular, the represented types are similar to HP M42 (Plate CLIII: 1, 4 and 7) and M43 (Plate CLIII: 8), and to SW TF 22 (Plate CLIII: 2) and SW TF 35 (Plate CLIII: 5 and 6). The general dating for Lower Nene Valley white ware mortaria is c. AD 150-400; types HP M42 and M43 are described as '*typologically late 3rd to 4th century*' (Hartley and Perrin 1999, 132). The Lower Nene Valley white ware mortaria at Oudenburg occur from fort level 3 onwards<sup>81</sup>. Only small amounts of this ware were found at Oudenburg in fort levels 3, 5 and in the post-Roman levels; more fragments occur at fort level 4.

### *8.2. Oxfordshire white ware mortaria*

White ware mortaria from Oxfordshire are perhaps marginally more common than their Nene Valley competitors at Oudenburg, representing 63 fragments, accounting for eleven MNI. The Oxfordshire fabric is hard and white, much like other fabrics defined as Romano-British, although it may sometimes have fine red inclusions, but the mortaria are easily distinguished by their very rounded, clear, white and grey trituration grits. The principal typology for Oxfordshire products is Young 1977, of which types M17 (Plate CLIV: 15), M17.2 (16), M18.1 (11), M18.2 (12), M22.1 (13), M22.10 (18), M17-22 (19) and the M22 series in general (20) are all represented at Oudenburg. Two very similar rims (Plate CLIV: 14 and 17) do not seem to be closely paralleled in the Young 1977 typology, nor in other less extensive publications of the ware.

Oxfordshire white ware is generally dated c. AD 240-400, although forms M17 and M18 are somewhat earlier, c. AD 240-300; the two vessels identified as M18.1 and M18.2 (Plate CLIV: 11 and 12) are associated with fort level 3 and 3+4, respectively. Fragments of Oxfordshire white ware mortaria were found at Oudenburg in levels 3 to 5 and in the post-Roman levels, with a peak in fort level 4 (six MNI) and another in the post-Roman levels (again six MNI). Their chronological distribution at Oudenburg is thus quite similar to that of Nene Valley white ware.

### *8.3. Oxfordshire white colour-coated ware*

Oxfordshire white colour-coated ware or white-slipped ware is a relatively rare Oxfordshire product with a red fabric, with some small black and red inclusions and larger chalk inclusions (Young 1977, 117). The trituration grits are the same as those used for Oxfordshire white ware. At Oudenburg just six sherds, all probably belonging to the same vessel (Plate CLIV: 9), were found in the post-Roman levels. The vessel form is Young 1977, WC7.2, and would normally be dated c. AD 240-400+.

### *8.4. A Verulamium white ware mortarium*

As Verulamium (or London-made Verulamium-type) products seem to have hardly reached Oudenburg, these wares apparently ceased to be widely distributed before Romano-British pottery began to arrive in quantity at Oudenburg. However, one Verulamium white ware mortarium has been identified (Plate CLV: 21; Fig. 53). The twelve joining fragments were found scattered over several levels; the earliest levels in which its fragments were found, can be assigned to fort level

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<sup>81</sup> One LNV WW mortarium rim fragment was found in context OS 30916, part of the earthen rampart of fort level 1. It is however believed that this fragment is an intrusive find from the defensive wall trench cutting this level; the same can be assumed for the Mayen fragment in this context. Therefore, this Lower Nene Valley individual has been counted in the numbers of fort level 4.



4. The form is close to that of Wilson (1984) 2697, which happens to be the last mortarium in the series from the excavations conducted by S. S. Frere (1972, 1983 and 1984), and dated c. AD 280-360. This date is an important chronological element for the phasing of fort level 4.



Fig 53: The Verulamium white ware mortarium of which several fragments, found scattered over different contexts and levels, were burnt after breakage.

## 9. Red-ware and white-ware mortaria with white grits (fabrics 1 to 8): a Romano-British phenomenon, regionally imitated? (By R. P. Symonds and S. Willems, in collaboration with S. Vanhoutte)

A total number of 288 fragments, accounting for 57 MNI, represent red-ware and white-ware mortaria with sandy fabrics that have relatively few distinctive inclusions (Plates CLVI-CLIX). They are characterised by a prominent white grit. While they cannot directly be identified as being British, the presence of these distinctive white grits rules them out as belonging to the known Rhineland or North-Gaulish imports. Their rims are also deviant of what can be expected from these two territories, but are closely related to forms from the Romano-British repertoire. Fabric analysis under the binocular indicates for most of the fabrics a resemblance to Romano-British wares, despite the absence of white grits in the descriptions of the British kiln sites.

Eight fabrics have been identified, some of them probably subvariants of one another (Table 51). These eight fabrics can be divided into three groups, namely a white fabric and a pinkish to orange fabric – which are, despite their difference in colour, related –, and a red fabric which possibly represents a continental, regional imitation of the first two groups. When the identifiable forms within each of these fabrics are taken into consideration, it becomes clear that these fabrics can be defined as probably Romano-British mortaria (or their imitations) with white grits.

### 9.1. Group 1: orange/pinkish fabrics 1 and 2

The pinkish fabrics are characterised by a very fine granular matrix with silt-sized inclusions, containing quartz, red grog and iron ore.

Fabric 1 (cf. Table 50) has a fine aspect with a laminar matrix containing small and silt-sized quartz and abundant small iron ore speckles. Larger inclusions consist of black, red and white grog and a rare large quartz or whitish stone fragment. The laminar structure is enhanced by the combination of a white and a pink clay, giving it often a marbled aspect that has also been noticed within the Pompeian Red wares, where a number of plates are probably Romano-British (cf. Appendix 16). The trituration grits are made of white stone (probably quartz).

Fabric 2 (cf. Table 50) is clearly a subvariant of fabric 1, with the same laminar matrix containing silt-sized quartz and iron ore speckles. It distinguishes itself by having more medium-sized quartz accompanied by large white ones or stone inclusions. The vessels in question have the same trituration grits of large white stones (cf. Fig. 54).

These two pinkish fabrics recall a number of fabrics identified as Oxfordshire white wares at Oudenburg in showing a mixture of white and pink clay. Typologically, the Oudenburg mortaria find close parallels in the Oxfordshire repertoire. However, they would be quite unusual in having a different style of grits. Oxfordshire mortaria are particularly characterised by their distinctive trituration grits comprising well-sorted, abundant, multi coloured translucent or transparent quartz (pink, black, white or brown) (Tyers 1996b, 129; Tomber and Dore 1998, 174). The presence of white grits, which is such a distinctive feature for our groups, makes a possible attribution to the Oxfordshire kiln sites suspicious.

Fabrics 1 and 2 and their variants are associated especially with forms Vanvinckenroye (1991) 351-353 (mortaria with a rounded, hooked flange), and therefore likely belong to a relatively specific group (examples Plate CLVI: 26-30, 32-36). Apart from the generally smaller colour-coated vessels from Oxfordshire and Hadham, larger mortaria with reddish fabric are not common in Britain. However, the fabrics of the Oudenburg examples are similar to Oxfordshire productions and their forms find close parallels in the Oxfordshire white wares type series M6 (Young 1977). Most of the represented mortaria in fabrics 1 and 2 are M6 types with thick flanges of which the tip is turned down, and a small upstanding inner rim. Examples Plate CLVI: 26, 27, 30, 32 and 33 show similarities to type Young M6.3. Examples Plate CLVI: 28 and 34 are close to type M6.6, mortarium Plate CLVI: 29 is similar to M6.4, and example Plate CLVI: 35 is near to type M6.3/M6.5. The only dated contexts mentioned in Young's typology for the M6 types are from the 2nd century (Young 1977). One Oudenburg example (Plate CLVI: 31), with a fabric 1 or 2, shows a totally different type, close to Young M12.3, with a stubby flange and upstanding inner rim. The Oudenburg flange is straighter than the Oxfordshire example though. The spout is formed by an excess of clay, and the wall exterior is ribbed. According to Young this form is dated to the late 2nd and early 3rd century, but the example from Oudenburg belonged to a context from level 4/5 (AD 260+).

## *9.2. Group 2: white fabrics 3, 4, 6 and 8*

Fabrics 3, 4, 6 and 8 are cream or white coloured, although fabric 3 often shows a composed colour consisting of a pink core with white fringes (cf. Table 51).

Fabric 3 (cf. Table 51) comprises abundant homogenous small quartz inclusions in an uneven matrix containing a few long-formed voids. It also contains rare medium-sized grog and abundant iron ore that causes the sand to be amber coloured. The trituration grit contains white stone and burnt flint.

Fabric 4 (cf. Table 51) shows a much more heterogeneous matrix with abundant small to medium-sized quartz, and a lot of iron ore inclusions, giving the fabric a cream to pink colour. Its overall aspect is coarser than fabric 3. The trituration grits are white.

Fabric 6 (cf. Table 51) is white with a neat matrix containing abundant silt-sized or small-sized sand. Iron ore is present but rare. The trituration grit contains white stone and burnt flint.

Fabric 8<sup>82</sup> (cf. Table 51) is also white, very fine and sandy, with overall small-sized and rare medium-sized quartz, abundant speckles of iron ore to which the quartz reacted and became orange coloured. Some rare red grog inclusions are present. The trituration grit contains white stone and burnt flint.

The rim forms of these mortaria clearly point to a non-continental origin. They can especially be compared with the mortarium types identified at Colchester and catalogued in Symonds and Wade (1999). Comparison with fabrics of hand-specimen of Oxfordshire White Ware mortaria shows several similarities. Assemblages which might yield answers, are those from Colchester. The fabric of the 2nd-century mortaria at Colchester (and later ones as they do not have a noticeably different fabric from the earlier mortaria) is a generally soft cream coloured, often yellowish, fine calcareous clay, quartz-rich, with sparse silver mica and with some iron-rich inclusions. Trituration grits are white, grey or black flint, which dominates, and quartz (Tyers 1996b, 119; Tomber and Dore 1998, 133-135). However, Tyers indicates that more options for their origin can be considered, as he adds that '*similar fabrics were also produced elsewhere in East Anglia and perhaps Kent*' (Tyers 1996b, 119). Tomber and Dore (1998, 133) mention that '*the fabric cannot be macroscopically distinguished from that of many produced in the north of France (...), at Wiggonholt (...) and at least some sources elsewhere in Norfolk, nor does thin section provide a reliable means of separation*'. However, the current known productions at sites in the north of France definitely rule out the possibility that they were made there. A Normandy origin remains a track to investigate. Nevertheless, Tomber and Dore clearly indicated the problematic identification of these mortaria. No published records were found of detailed fabric descriptions of later Colchester mortaria for further comparison to be able to answer our questions. Neither can the question be answered whether there were late Roman mortaria productions in East Anglia, or elsewhere in Britain, that applied only white grits.

As already mentioned above, on typological grounds, fabrics 3, 4 and 6 can all be associated with mortarium types identified at Colchester in Symonds and Wade (1999): TZ types 85-7, 137-141, and 151-158. These Colchester types are believed to represent a late Colchester production. The illustrated Oudenburg vessels are examples Plate CLVII-CLIX: 37-54<sup>83</sup> and 67-72, and their associations with Colchester types are detailed in the catalogue (see Section 11 of this Appendix). Fabric 8 includes just one identifiable form, a relatively rare Young (1977) M7.2 (Plate CLIX: 78), which may thus be an Oxfordshire product. For the two other illustrated vessels in this fabric (Plate CLIX: 76 and 77) so far no close parallels could be found.

Based on form and fabric similarities, a Romano-British origin seems convincing for this group. An attribution to Colchester, the Oxfordshire or another kiln site in the wider region can be supposed but remains hypothetical. Further research based on fabric analysis on the late Colchester mortaria and a comparison by hand-specimen with the Oudenburg examples in question is needed to come to definite conclusions on this.

When presenting the forms of the (later) mortaria made at Colchester, Rex Hull made an extraordinary statement that is worth repeating here: '*So great is the diversity of our rims that at first sight one feels that several different forms are to be listed, but longer acquaintance teaches that this is almost impossible. In the end we have decided to group nearly all of them under one form-number (f497)*' (Hull 1963, 116). For the most part the with the Colchester types related mortaria have a fairly heavy curved flange and a small upright rim. It is worth noting that although the Oudenburg examples Plate CLVIII: 52 and 54 are described as wall-sided, they do not correspond to the relatively specific late Colchester wall-sided mortaria SW TZ types 163-172, nos. 298-320, but rather to the less vertical Hull 1963, fig. 65, no. 9. The more vertical wall-sided

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<sup>82</sup> The fabric described as 'fabric 8 variant' could only be attested once, with a body fragment.

<sup>83</sup> A rim fragment recovered from the final infill of the double well structure OS 2562 and similar to example no. 50 (fabric 3-6) has been identified in the 2009 publication of the well (Vanhouste *et al.* 2009b) as a Speicher product. However, further comparative study with the Romano-British form repertoire and fabric analysis on the totality of the mortarium assemblage have concluded to other insights, presented here.



mortaria made at Colchester do not seem to have been observed at Oudenburg, even though they were apparently made during the late 2nd and 3rd centuries (Hull 1963, 191, types 501 A and B).

### 9.3. Group 3: red fabrics 5 and 7: continental, regional imitations?

Two fabrics, 5 and 7, show an orange to reddish colour, and sometimes a layered colour difference, with a greyish core and orange fringes (Table 51).

Fabric 5 (cf. Table 51) has a matrix containing silt-sized quartz. Small-sized and medium-sized quartz are densely mixed, and iron ores and medium-sized red grog are present in some of the examples, but they are certainly not dominant inclusions. The trituration grits are white, mixed with red inclusions (grog?) (cf. Fig. 54).

Fabric 7 (cf. Table 51) belongs to the same fabric group, but with a neater matrix, slightly laminar and shiny because of the presence of white mica. The fabric contains regularly spread and larger rounded white quartz, red grog and iron ore inclusions. The trituration grits are more varied, with white and grey stones as well as what could be red grog (cf. Fig. 54).

These two fabrics are of uncertain origin, but are similar to the fabrics of flagons of the regional group (cf. Appendix 17), and comparable to fabric 6 of the Pompeian Red wares (cf. Appendix 16). In first instance, because of the presence of the distinctive white grits, they were put in the group of the 'probably British mortaria'.



Fig 54: Representative examples of mortaria of the south-west corner site in fabric 2, 5 and 7.

Most of the fabric 5 and 7 mortaria show a hammer-like rounded flange with a beaded inner rim, close to Gose 451/453 (cf. Plates CLVIII-CLIX). At Colchester, the Oudenburg fabric 5 examples find parallels in types SW TZ types 131-135 (Oudenburg example Plate CLVIII: 55), type 141 (Plate CLVIII: 57), type 157 (Plate CLVIII: 58, 59, 62, 63, 65) and type 159 (Plate CLVIII: 66). The mortarium (Plate CLVIII: 55) with hooked flange and upstanding inner rim, is also similar to the Oxfordshire type group Young M17. Other close parallels belong to the Champagne and Meuse Valley repertoire, similar to Reims MO 1 (Deru 2014) and Vanvinckenroye 347. The mortaria in fabric 7 cannot (so far) be associated closely with published vessels. The illustrated forms are examples Plate CLIX: 73 to 75. Fabric 5 and related fabrics are present from fort level 4 onwards (one MNI at fort level 4, two MNI at fort level 5, six MNI in the post-Roman level); fabric 7 only occurred in the post-Roman level.

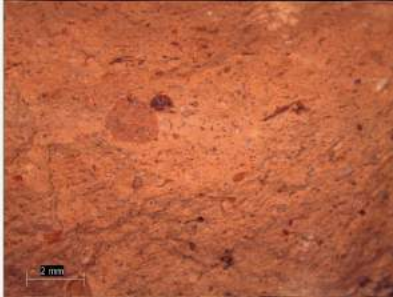
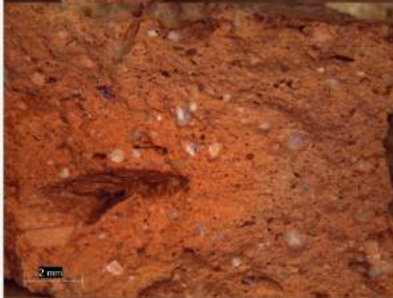
The distinctive fabrics 5 and 7 in combination with their typology put them apart from the other identified mortaria with white grits. They possibly represent a regional production, influenced by the Romano-British as well as the Rhineland or Champagne mortaria. The Gose 453 type/Reims MO 1 is typical for later phases, from AD 230/240 onwards until the beginning of the 5th century, according to the Reims contexts. The type group Young M17 which shows parallels with mortarium Plate CLVIII: 55, is dated to the period AD 240-300.

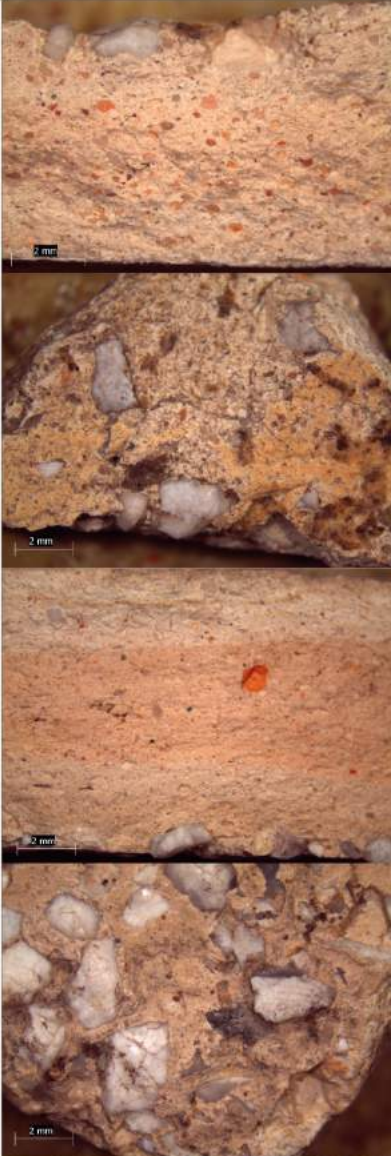
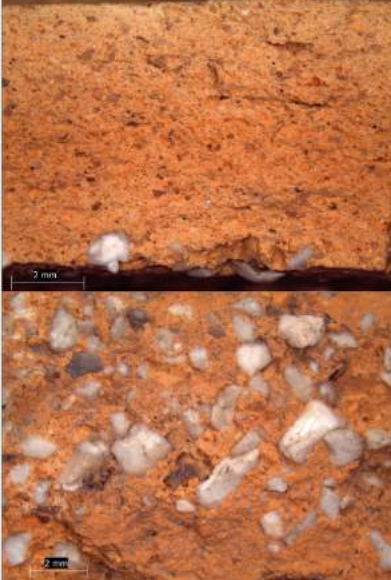
Based on the represented forms and types, in combination with the fabrics, it seems justified to conclude to a Romano-British origin for fabrics 1, 2, 3, 4, 6 and 8 and their variants. The fabrics 5 and 7 point to a regional production seemingly influenced by these Romano-British productions.

When the chronological distribution of the three provenance groups is considered, it becomes clear that most of these mortaria do not occur before fort level 4. They are all popular during fort level 5 and in the post-Roman level, likely indicating their belonging to the later period of occupation. This diverges from the classic Oxfordshire mortaria found at Oudenburg which were found from fort level 3 onwards and are well-present at fort level 4, but nearly absent at fort level 5. As the 'Romano-British' group (including their presumed imitations) in question almost completely belongs to fort levels 4, 5 and the post-Roman levels, these mortaria are clearly a late(r) Roman phenomenon.

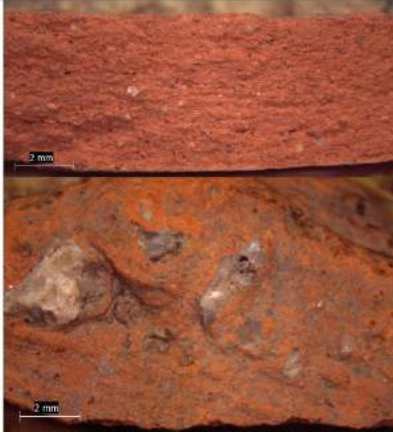
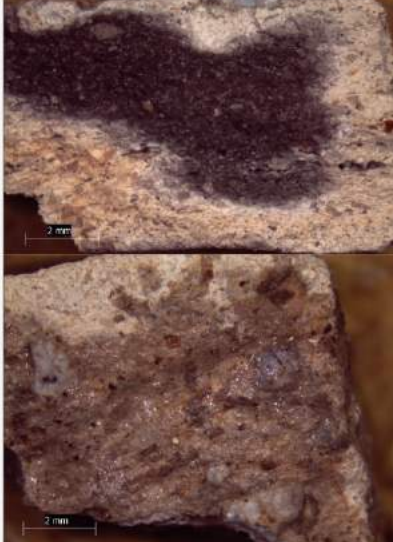
It is obviously unfortunate that mortaria of this period can be notoriously difficult to identify and classify, as Hull remarked in his 1963 investigation of the subject (see before). A more wide-ranging programme of petrological and chemical analysis than has so far been possible could elucidate some of the problems. What is needed first is a set of samples from all of the possible production centres, both continental and British. As far as forms are concerned, there is also a need for a more concentrated approach to the difficulties of definition. It is evident that potters making later mortaria with a curved flange and upright rim were rather less bothered about standardisation of their products than those who made fine wares or samian: what mattered was to make a robust flange that could provide the user with a firm grip while grinding the material with a pestle against the wall. However, our study shows that many of the mortaria reported on here could at least be assigned to a production centre region on the basis of their general form, even if we could not be a lot more specific than that. Much work has been done on this subject since the 1950s, but clearly there is much more work to do.

fabric	brief description	MNI	sherd count
<p><b>fabric 1</b></p>	<p>pinkish orange fine fabric with mainly small and silt-sized quartz and iron ore</p>	<p>7</p>	<p>22</p>
<p><b>fabric 2</b></p>	<p>variant of fabric 1, with a fine matrix with iron ore but combined to larger white quartz</p>	<p>8</p>	<p>18</p>



fabric	brief description	MNI	sherd count
<p><b>fabric 3</b></p>	<p>cream fine fabric with iron ore and some rare grog</p> 	<p>12</p>	<p>42</p>
<p><b>fabric 4</b></p>	<p>cream pink fabric with more heterogenous quartz</p> 	<p>7</p>	<p>8</p>



fabric	brief description		MNI	sherd count
<b>fabric 5</b>	reddish fine fabric with silt-sized quartz combined with larger quartz inclusions		9	30
<b>fabric 6</b>	white sandy fabric with a neat matrix		8	31

fabric	brief description	MNI	sherd count
<b>fabric 7</b>	red fabric, sometimes with a greyish core, neat matrix with mica and containing abundant quartz, red grog and iron ore	2	5
<b>fabric 8</b>	white fine sandy fabric, with abundant speckles of iron ore	7	128
<b>fabric 8 variant</b>	white fabric with a laminar structure, well-fired, containing abundant quartz and iron ore; close to fabric 8		1

Table 51: Coarse mortaria fabrics 1 to 8. Description and quantification.

## 10. Conclusions on the coarse mortaria and their significance for revealing trade networks (By S. Vanhoutte, S. Willems and R. P. Symonds)

The Oudenburg coarse mortaria assemblage appears to be very significant, notably because it provides a rare opportunity to compare the vessels made in the northern continental provinces with those exported from Britain. When considering the mortarium imports according to the regions they represent, the main trade routes become very visible. If our assumption is true that most of the red-ware and white-ware mortaria with white grits originate from *Britannia*, three supply axes can be defined: one from the East, one from the West and one from the South (Table 52; Fig. 55).

Two import regions dominate the mortarium spectrum, reflecting the major supply axes to the Oudenburg fort: the east-west axis from the wider Rhine region and the west-east axis from *Britannia*. A south-north axis, the supply line from Bavay-Famars, was mainly significant until the middle of the 3rd century (Fig. 56). Counting the Rhineland and Soller mortaria as a whole together with those generally identifiable as Eifel, Rhineland and Meuse Valley, the East absolutely dominates the supply of this kitchen tool to the Oudenburg fort, with nearly 50% of the total MNI (or 116 individuals) (this is when leaving out the regional mortaria, the unattributed ones and the casual imports from more southern territories). The other major supplier was *Britannia*, with 30.5% of the total MNI (or 71 individuals). The south-Nervian production follows as the third import zone, however of lesser importance with 37 individuals or 15.9%.

production regions	L1 (n:5)	FL2 (n:12)	FL3 (n:23)	FL4 (n:60)	FL5 (n:42)	POST& mixed (n:99)	TOTAL	%MNI
<b>RHINE-MEUSE-EIFEL REGION</b>	3	4	12	35	28	34	<b>116</b>	48,1
<b>BRITISH</b>			4	13	8	46	<b>71</b>	29,5
<b>BAVAY-FAMARS</b>	2	7	7	9	3	9	<b>37</b>	15,4
<b>REGIONAL?</b>				1	3	7	<b>11</b>	4,6
<b>MORE SOUTHERN TERRITORIES</b>		1		2		3	<b>6</b>	2,5
<b>TOTAL</b>	<b>5</b>	<b>12</b>	<b>23</b>	<b>60</b>	<b>42</b>	<b>99</b>	<b>241</b>	100

Table 52: Distribution according to the stratified evidence of the production regions represented by the coarse mortaria at the south-west corner site, based on MNI.

distribution of the main coarse mortaria fabrics in MNI (n: 224),  
leaving out the regional amphorae, the unattributed ones  
and the casual imports from more southern territories

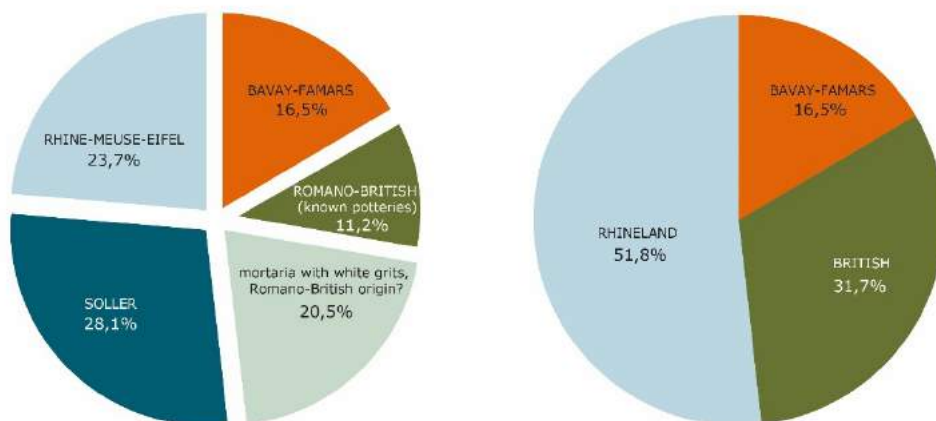


Fig 55: Distribution of the main coarse mortaria production regions in MNI (n: 224), leaving out the regional mortaria, the unattributed ones and the casual imports from more southern territories.

The distribution of the fabrics according to the level they were found, shows an evolution in the supply of the coarse mortaria. The Bavay-Famars supply seems to have lost its importance by the middle of the 3rd century; at that time, British imports started to come in. In a first stage, the well-known Romano-British potteries from the Lower Nene Valley and Oxfordshire were supplying in moderate quantities to the Oudenburg fort. The Romano-British products gained popularity from



the late 3rd century onwards and became very significant during the 4th century. At that time however they consist mainly of so far unknown Romano-British productions. These as Romano-British presumed red-ware and white-ware mortaria with white grits are obviously a late phenomenon. They appear to have been imitated in a regional production. As is discussed with the local/regional North-Menapian industry, a 4th-century production in the region seems hardly possible given that the civil occupation diminished strongly (if at all present in any number). It seems therefore evident that we should look for a wider-regional production centre. Obviously, further research is needed to clarify this issue. The mortaria from the Rhineland, and mainly those from Soller, remained the most important imports, and this apparently throughout the fort's occupation.

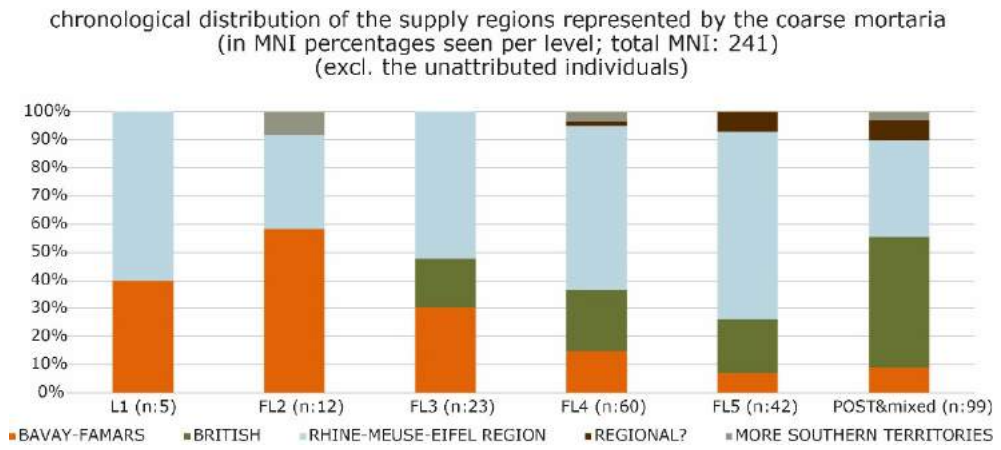


Fig 56: Distribution of the production regions at the south-west corner site, according to the stratified evidence, based on MNI%.

## 11. Catalogue of the illustrated Romano-British and presumed Romano-British coarse mortaria of the south-west corner site

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	code	date AD	description
1	C 5422	OS 1169	3	230	2	1	0.14	LNV WW	250-400	Lower Nene Valley white ware, HP M42; horizontal rim
2	C 5408	OS 1117/1213/81441	3+4	314	3	1	0.28	LNV WW	150-400	Lower Nene Valley white ware, SW TF fig. 4.20, no. 22 (Nene Valley); flat curved rim; only base of rim/collar preserved, not the rim
3	C 5469	OS 1077/ 8471	4	nm	1			LNV WW	150-400	Lower Nene Valley white ware, base only; black grit
4	C 5450	OS 8989	4	250	1	1	0.07	LNV WW	200-400	Lower Nene Valley white ware, HP M42; horizontal rim
5	C 5443/5444/ 5493	OS 4921/4932/7937	4+5	220	7	1	0.4	LNV WW	150-400	Lower Nene Valley white ware similar to SW TF fig. 4.21, no. 35 (Nene Valley), but unusual for having almost no internal bead; ribbed, horizontal rim; black grit; heavily burnt
7	C 5491	OS 8929/ 8933	5	240	4	1	0.16	LNV WW	250-400	Lower Nene Valley white ware, HP M42; horizontal rim; complete, small spout, black grit
8	C 5608	OS 1001	mixed	188	2	1	0.06	LNV WW	250-400	Lower Nene Valley white ware, HP M43; straight ribbed rim with upstanding lip
9	C 5524/5551	OS 4000 G/1/4002	post	190	6	1		OXF WC	240-400	Oxfordshire white-coated ware, Young (1977) WC 7.2; complete spout; mixed grit: white, grey, red, black white-yellowish; burnt, partially to black
10	C 5424	OS 8964/ 81047	3	nm	4			OXF WW	240-400	Oxfordshire white ware, base only
11	C 5432	OS 8962	3+4	280	4	1	0.2	OXF WW	240-300	Oxfordshire white ware, Young (1977) M18.1; complete spout; burnt
12	C 1158	OS 7971-70275-70270b	4	220	6	1	0.09	OXF WW	240-300	Oxfordshire white ware, Young (1977) M18.2; curved rim; small individual; burnt after breakage; three fitting rim sherds
13	C 5452	OS 8980	4	188	1	1	0.1	OXF WW	240-400	Oxfordshire white ware, Young (1977) M22.1
14	C 5466	OS 7932	4	290	4	1	0.06	OXF WW	240-400	Oxfordshire white ware, with curved rim
15	C 5471	OS 70032	4	nm	2	1	0.02	OXF WW	240-300	Oxfordshire white ware, Young (1977) M17; curved rim (not measurable)
16	C 5606-5607	OS 1001	mixed	220	4	1	0.2	OXF WW	240-300	Oxfordshire white ware, Young (1977) M17.2; slightly curved rim with upstanding lip
17	C 1515/5505	OS 7901/ 7947	4/5+ post	280	4	1	0.13	OXF WW	240-400	Oxfordshire white ware, with curved rim; burnt
18	C 5535	OS 2000 G	post	270	1	1		OXF WW	240-400	Oxfordshire white ware, Young (1977) M22.10; base of rim chipped off (est. diam.)
19	C 5541	OS 8114	post	170	1	1		OXF WW	240-400	Oxfordshire white ware, Young (1977) M17-22 (est. diam.)
20	C 5573	OS 4905	post	198	1	1		OXF WW	240-400	Oxfordshire white ware, similar to the Young 1977 M22 series; curly rim with upstanding lip; burnt (est. diam.)
21	C 5433/5437/ 5460/5489/ 5534	OS 2986/ 4949/ 22940/ 22947/ 22948	3/4/5/ post	270	14	1	1	VER MOR	280-360	Verulamium region white ware, white, layered fabric; similar to type Wilson (1984) 2697 (the latest vessel in the series); hammer-shaped rim; half of spout; burnt after breakage: sherds with and without fire traces

Table 53: Catalogue of the illustrated Romano-British (LNV WW, OXF WC, OXF WW, VER MOR) and presumed Romano-British (fabrics 1, 2, 3, 4, 6, 8) coarse mortaria and their presumed imitations (fabrics 5 and 7) of the south-west corner site. Catalogue numbers refer to Plates CLIII-CLIX. (this page and following pages)

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	code	date AD	description
22	C 5575	OS 2000 L/2023	post	214	2	1	0.2	British (?)		very fine fabric with orange to grey slip; fine, curved flange with upstanding rim
23	C 5540a/1160a	OS 7093/70310	post	280	2	1	0.07	British (?)		curved hammer-shaped rim; burnt; iron remains on surface and break
24	C 5504	OS 7901Z/7908	5+post	222	1	1	0.06	British (?)	240-400	dense-layered fabric with very fine matrix, with abundant quartz; square rim
25	C 5572b	OS 1915	post	nm	1	1		British (?)		thick rounded rim with incised circles; heavily burnt; rim not measurable
26	C 5462	OS 1.1 bis (19)	4	360	1	1	0.05	Fabric 1		VV 352; curved flange (incomplete) with upright rim; white grit; slightly burnt
27	C 5502	OS 4921	5	nm	1	1	0.03	Fabric 1		VV 352; curved flange with upstanding rim; white grit; burnt; rim not measurable
28	C 5508	OS 8907	5+post	460	1	1	0.09	Fabric 1		large pending, slightly curved flange with upstanding rim; large individual
29	C 5538	OS 2000 G	post	260	2	1		Fabric 1		complete spout, with wavy lines inside the spout (est. diam.)
30	C 5612	OS 1001	mixed	380	1	1	0.07	Fabric 1		VV 347 - 352?; heavy curved flange/rim; white grit; burnt with black spots
31	C 5480	OS 80918	4+5	256	1	1	0.1	Fabric 1 or 2		half of spout; white slip
32	C 5451	OS 1110	4	240	1	1	0.06	Fabric 2		VV 352; curved rim; white grit, sparse
33	C 5513/5610	OS 1001/8907	5+post/mixed	270	2	1	0.08	Fabric 2		VV 352 variant; curved rim with upstanding lip; white grit; burnt, partially to black after breakage
34	C 5506	OS 7907	5+post	260	1		0.08	Fabric 2		curved rim; white grit
35	C 5592	OS 7950 A	post	220	1	1		Fabric 2		curly rim with upstanding lip; heavily burnt: rim surface partly vitrified; scoring; a possible volcanic glass inclusion in the fabric (est. diam.)
36	C 5562	OS 8901	post	nm	2	1	0	Fabric 2 related		VV 351 - 352?; curved rim; very rough; white grit; one repair hole underneath rim inner surface abraded; burnt; upstanding rim broken off
37	C 5518	OS 8907	5+post	204	1	1	0.12	Fabric 3		hooked rim; white grit; base of collar completely broken off; very fine white fabric
38	C 5564/5568	OS 2000 A/8908	post	250	2	1		Fabric 3		hammer-shaped rim similar to SW TZ type 157, p. 169 & fig. 4.15, nos. 281-4; scoring; partially burnt to black (est. diam.)
39	C 5523	OS 2000 B	post	nm	2	1		Fabric 3		vertical rim with separate upstanding lip, similar to SW TZ types 151 to 157, fig. 4.15; fabric with very pale pink core (est. diam.)
40	C 5526	OS 5900	post	nm	1	1		Fabric 3		half of spout: simple, small & shallow; scoring; white grit; burnt; incomplete rim, not measurable
41	C 5539	OS 7093	post	234	1	1		Fabric 3		hammer-shaped rim similar to SW TZ type 137, p. 169 & fig. 4.14, no. 252; white grit (est. diam.)
42	C 5544	OS 4000 F	post	nm	1			Fabric 3		base only; burnt
43	C 5548	OS 4000 J	post	204	1	1		Fabric 3		vertical, square flange with upstanding rim, similar to SW TZ type 157, p. 169 & fig. 4.15, no. 281 (est. diam.)
44	C 5555	OS 4000 G	post	230	1	1		Fabric 3		vertical square rim with upstanding rim, similar to SW TZ type 139, p. 169 & fig. 4.14, no. 257; white grit; fabric with pale pink core (est. diam.)
45	C 5556	OS 4000 G	post	nm	1			Fabric 3		base only; body with ribs; white grit; fabric with pale pink core
46	C 5576	OS 2000 L	post	276	2	1	0.11	Fabric 3		triangular rim, similar to SW TZ type 139, p. 169 & fig. 4.14, no. 256; white grit
47	C 5583	OS 2000 E	post	nm	1			Fabric 3		base only
48	C 5599	OS 4000 L	post	nm	1			Fabric 3		base only; white grit; burnt, partly to black; almost complete base
49	C 5409/5571	OS 1908/1915	3/post	nm	2	1		Fabric 3-6		yellowish fabric; flat, curved rim, not measurable
50	C 5613	OS 6000	mixed	178	1	1	0.05	Fabric 3-6		yellowish fabric; hammer-shaped, square flange with upturned rim
51	C 5584	OS 8903	post	234	1	1		Fabric 3-8		square flange with upturned rim, similar to SW TZ, p. 169 & fig. 4.14, no. 254; (est. diam.)

cat. no.	drawing no.	feature / context OS	level	rim diam. (in mm)	sherd count	MNI	EVE	code	date AD	description
52	C 5579	OS 2000 E	post	228	1	1		Fabric 4		wall-sided flange with upturned rim, similar to Colchester late wall-sided Hull 1963, fig. 65, no. 9 (est. diam.)
53	C 5533	OS 3001 A	post	nm	1	1		Fabric 4 variant		form and surface look like Fabric 3, but much coarser fabric, rather fabric 4 but white version; top of square rim (not measurable) with upturned rounded rim; white grit
54	C 5588	OS 2046	post	210	1	1		Fabric 4-6		vertical, square rim with upturned rim, similar to Colchester late wall-sided Hull 1963, fig. 65, no. 9 (est. diam.)
55	C 5494	OS 4998A (4923 VBB)	5	236	1	1	0.14	Fabric 5		VV 352, similar to SW TZ types 131-5, p. 169, figs. 4.13-4, nos. 238-49; curved collar with upstanding rim; white grit; remains of white slip; burnt to black
56	C 5497	OS 4998A-B-C (4923 VBB)	5	304	1	1	0.05	Fabric 5		not white slipped; white grit; base of collar broken off
57	C 5509	OS 8907	5+post	216	3	1	0.22	Fabric 5		curved flange with upturned rim, similar to SW TZ type 141, fig. 4.14 no. 260; white grit; start of spout
58	C 5527	OS 4960	post	nm	1	1		Fabric 5		curved flange with upturned rim, similar to SW TZ type 157, p. 169 & fig. 4.15, nos. 281-4; rim not measurable; remains of white slip; burnt
59	C 5547	OS 4000 J	post	250	1	1		Fabric 5		curved flange with upturned rim, similar to SW TZ type 157, p. 169 & fig. 4.15, nos. 281-4 (est. diam.); white slip on interior and exterior surface; burnt after breakage (black spot on side and break)
60	C 5569	OS 7439-7440	post	nm	1			Fabric 5		very heavy base only; burnt
61	C 5582	OS 2000 E	post	nm	1			Fabric 5		base only
62	C 5593	OS 4000 L	post	266	1	1	0.08	Fabric 5		curved flange with upturned rim, similar to SW TZ type 157, p. 169 & fig. 4.15, nos. 281-4; white grit; only collar burnt (root?)
63	C 5619	OS 2000 M	post	nm	1	1		Fabric 5		base of rim (not measurable) broken off, similar to SW TZ type 157, p. 169 & fig. 4.15, nos. 281-4
64	C 5514/5517	OS 8902/8907	5+post	nm	2			Fabric 5 variant		base only; white grit
65	C 5512/5609	OS 1001/8907	5+post/mixed	276	3	1	0.12	Fabric 5 variant		fine, long, curved flange with upturned rim, similar to SW TZ type 157, p. 169 & fig. 4.15, nos. 281-4; white grit
66	C 5470/5507b	OS 7907/70032	4/5+post	227	2	1	0.17	Fabric 5 variant		curved rim similar to SW TZ type 159, p. 170 & fig. 4.15, no. 287; white grit; burnt
67	C 5474/5540b	OS 7093/ 7935/ 7952/ 7969	4+5/post	260	6	1	0.14	Fabric 6		curved flange with upturned rim, similar to SW TZ types 85-7, p. 168 & fig. 4.12, nos. 192-6
68	C 5546/C5561	OS 4000 J/4976	post	nm	7	1		Fabric 6		very rough, mainly white fabric; burnt; base of upturned rim broken off (not measurable)
69	C 5519	OS 4000 K	post	192	1	1		Fabric 6		curved flange with upturned rim; white grit (est. diam.)
70	C 5528	OS 2000 F	post	260	1	1		Fabric 6		Curved flange with upturned rim, similar to SW TZ type 157, p. 169 & fig. 4.15, nos. 281-4 (est. diam.)
71	C 5545	OS 4000 J	post	275	5	1		Fabric 6		almost flat flange with upturned rim; burnt (est. diam.)
72	C 5591	OS 4000 A	post	250	1	1		Fabric 6		almost flat flange with upturned rim (est. diam.); complete spout; very simple, rough fabrication; burnt
73	C 5552/5581	OS 4000 G	post	220	2	1		Fabric 7		brown-orange fabric with grey core; curved flange with upturned rim (est. diam.); complete spout; white grit
74	C 5515	OS 8902	5+post	284	1	1	0.07	Fabric 7		curved, almost flat flange with upturned rim; almost complete spout; base of collar chipped off
75	C 5594-5598	OS 4000 L	post	196	5	1	0.125	Fabric 7		curved flange with upturned rim
76	C 5559	OS 4975C	post	230	1	1		Fabric 8		curved flange with upturned rim; white grit (est. diam.)
77	C 5578	OS 2000 E	post	270	1	1		Fabric 8		curved flange with upturned rim (est. diam.)
78	C 5600	OS 7105	post	246	9	1		Fabric 8	100-170	?Oxfordshire white ware Young (1977) M7.2; completely burnt, partially to black (est. diam.)



## APPENDIX 14 - Amphorae at the south-west corner site (By S. Vanhoutte and P. Monsieur)

### 1. Introduction to the amphorae assemblage

Amphorae are not only very important in the light of the long-distance and interregional trade, but also in the evidence of the products, *i.e.* liquid commodities and foodstuffs, stored and transported in these pottery containers. Moreover, the amphorae assemblage of the south-west corner site yields important chronological guide fossils for the dating of at least one of the fort levels.

Based on the number of sherds, the amphorae at the Oudenburg site account for 1.9 % (2398 fragments) of the total Roman ceramic assemblage, nearly 2% (1769 sherds) when only the ceramics of the Roman level are considered. They account for 103 MNI. However, only 65 MNI were found stratified within the Roman level. The other 38 individuals belonged to the post-Roman and mixed levels as residual items. Although they form a rather small group compared to the other ceramic groups, the amphorae fragments represent an interesting spectrum, a remarkable assemblage for the North of Gaul of amphorae for olive oil, wine and fish products of Mediterranean and Atlantic origin, so far little attested in our region (Monsieur 2015). The largest share of the amphorae was imported over a long distance; a small portion though represents regional amphorae.

The intense occupation of the fort resulted in a significant periodic disturbance of earlier layers, so-called 'reworking' of material which makes the assignment to the specific original fort level difficult. Moreover, the amphorae sherds themselves show an intense re-use – of half of the vessels or of fragments – pointing to different functionalities in the second lives of the amphorae. Several indicators mark this re-use: modification traces (with chisel, saw, hammer), wearing traces, the degree of fragmentation (*e.g.* the striking large amount of Dr. 20 chips), burning marks, renovation holes with or without the remains of an iron or lead dowel, graffiti *post cocturam*. Some amphorae were probably re-used, completely or as a half, as a vessel or container of some kind, sherds were recycled for small constructional purposes in floor levels and oven walls, some fragments were used for epigraphic messages (*cf. ostraca*). The post-depositional distribution of the sherds could be traced based on the exhaustive puzzling and the resulting cross joins, showing not only vertical but also horizontal dispersion (Fig. 57).

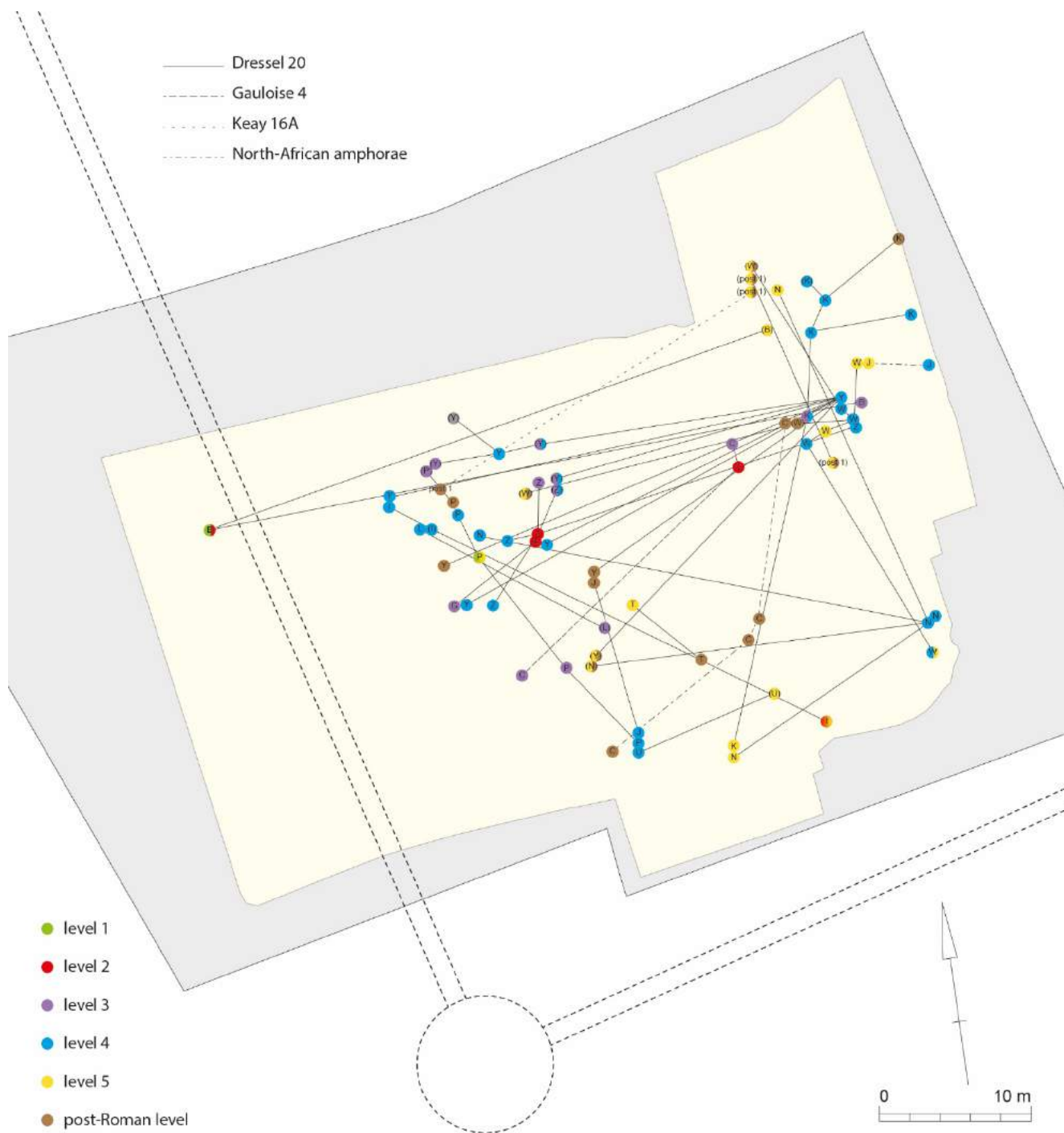


Fig 57: Visualisation of the lateral cross joining amphorae fragments stretching over a distance of at least 2 m.

## 2. Methodology of the study

For the amphorae assemblage the choice was made to study both the finds from the Roman level and the post-Roman level. Certainly the several cross joins of fragments from the Roman level with pieces of the post-Roman level indicate the high level of residuality at this site. Obviously, the analysis takes into account the additional residuality from outside the fort, from the civil settlement, as already referred to in the samian study.

Since diagnostic fragments, such as rims and handles, are not common in the amphorae assemblage, much priority was given to the exhaustive puzzling of the fragments. (Sub)groups

were made, not only based on the cross joining, but also differences in fabric, technique, surface and wearing were taken into account. As such, more (sub)groups or individuals (MNI) could be distinguished (cf. Tables 54, 55 versus 56).

Also weights were taken as an extra comparison medium (Table 57). Since the division in fabric groups was easier for some types (e.g. the Dressel 20 and the North-African amphorae, with clear visual and technical differences in fabric and surface) than for other types (e.g. the Gauloise 4 and the Gauloise 13, with very little variety between the fabrics), it is important to combine the results of the MNI counts, the sherd counts and the weights in the analysis (cf. Tables 54-57; Fig. 58-61).

The identification of the amphorae sherds was primarily based on the publications by Peacock and Williams (1991(1986)), Sciallano and Sibella (1991) and Tyers (1996a), besides all publications listed below for each amphora group.

The amphorae imported over a long distance are studied as a group and all comparisons and percentages are made in relation to this group. The regional amphorae are considered separately, since it is likely that, due to the properties of these vessels, they could not be captured in their totality (i.e. moderately thick-walled medium and small body sherds in regional fabrics might belong as well to amphorae as to flagons) and their quantification may be not completely representative.

All illustrated amphorae fragments have a number 'AM' to which is referred in the following text. These numbers are related to the drawings on Plates CLX-CLXVIII. Specific details of the identified amphorae subgroups can be found in Addendum 6.

LONG-DISTANCE TRADE AMPHORAE: number of sherds	DR 20	G4	DR 14	KEYA 16A	KEYA 19C	NAF AM	KAPITÄN 2	DR 7/10	HALTERN 70	BELTRAN II A/B	BAETICA undet.	undet.	TOTAL
L1	3	46	0	0	0	0	0	0	0	0	0	0	49
FL2	15	9	0	0	0	0	0	0	0	0	0	0	24
FL3	116	19	0	0	0	2	0	1	0	0	0	0	138
FL4	926	49	0	0	0	3	5	1	0	0	0	0	984
FL5	450	19	0	0	0	26	0	0	0	1	0	1	497
<b>TOTAL ROMAN LEVEL</b>	<b>1510</b>	<b>142</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1692</b>
5+POST / POST	438	47	1	6	1	92	3	4	13	0	1	0	606
<b>TOTAL</b>	<b>1948</b>	<b>189</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>123</b>	<b>8</b>	<b>6</b>	<b>13</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2298</b>

LONG-DISTANCE TRADE AMPHORAE: number of sherds in %	DR 20	G4	DR 14	KEYA 16A	KEYA 19C	NAF AM	KAPITÄN 2	DR 7/10	HALTERN 70	BELTRAN II A/B	BAETICA undet.	undet.	TOTAL
L1	6,12	93,88	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	100,00
FL2	62,50	37,50	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	100,00
FL3	84,06	13,77	0,00	0,00	0,00	1,45	0,00	0,72	0,00	0,00	0,00	0,00	100,00
FL4	94,11	4,98	0,00	0,00	0,00	0,30	0,51	0,10	0,00	0,00	0,00	0,00	100,00
FL5	90,54	3,82	0,00	0,00	0,00	5,23	0,00	0,00	0,00	0,20	0,00	0,20	100,00
<b>TOTAL ROMAN LEVEL</b>	<b>89,24</b>	<b>8,39</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>1,83</b>	<b>0,30</b>	<b>0,12</b>	<b>0,00</b>	<b>0,06</b>	<b>0,00</b>	<b>0,06</b>	<b>100,00</b>
5+POST / POST	72,28	7,76	0,17	0,99	0,17	15,18	0,50	0,66	2,15	0,00	0,17	0,00	100,00
<b>TOTAL</b>	<b>84,77</b>	<b>8,22</b>	<b>0,04</b>	<b>0,26</b>	<b>0,04</b>	<b>5,35</b>	<b>0,35</b>	<b>0,26</b>	<b>0,57</b>	<b>0,04</b>	<b>0,04</b>	<b>0,04</b>	<b>100,00</b>

Table 54: Distribution of the amphorae at the south-west corner site, according to the stratified evidence, based on sherd count and sherd count percentage.



LONG-DISTANCE TRADE AMPHORAE: number of sherds, without counting chippings	DR 20	G4	DR 14	KEYA 16A	KEYA 19C	NAF AM	KAPITÄN 2	DR 7/10	HALTERN 70	BELTRAN II A/B	BAETICA undet.	undet.	TOTAL
L1	3	46	0	0	0	0	0	0	0	0	0	0	49
FL2	15	9	0	0	0	0	0	0	0	0	0	0	24
FL3	111	19	0	0	0	2	0	1	0	0	0	0	133
FL4	724	47	0	0	0	3	5	1	0	0	0	0	780
FL5	436	19	0	0	0	26	0	0	0	1	0	1	483
<b>TOTAL ROMAN LEVEL</b>	<b>1289</b>	<b>140</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1469</b>
5+POST / POST	412	42	1	6	1	92	3	4	13	0	1	0	575
<b>TOTAL</b>	<b>1701</b>	<b>182</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>123</b>	<b>8</b>	<b>6</b>	<b>13</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2044</b>

LONG-DISTANCE TRADE AMPHORAE: number of sherds, without chippings, in %	DR 20	G4	DR 14	KEYA 16A	KEYA 19C	NAF AM	KAPITÄN 2	DR 7/10	HALTERN 70	BELTRAN II A/B	BAETICA undet.	undet.	TOTAL
L1	6,12	93,88	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	100,00
FL2	62,50	37,50	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	100,00
FL3	83,46	14,29	0,00	0,00	0,00	1,50	0,00	0,75	0,00	0,00	0,00	0,00	100,00
FL4	92,82	6,03	0,00	0,00	0,00	0,38	0,64	0,13	0,00	0,00	0,00	0,00	100,00
FL5	90,27	3,93	0,00	0,00	0,00	5,38	0,00	0,00	0,00	0,21	0,00	0,21	100,00
<b>TOTAL ROMAN LEVEL</b>	<b>87,75</b>	<b>9,53</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>2,11</b>	<b>0,34</b>	<b>0,14</b>	<b>0,00</b>	<b>0,07</b>	<b>0,00</b>	<b>0,07</b>	<b>100,00</b>
5+POST / POST	71,65	7,30	0,17	1,04	0,17	16,00	0,52	0,70	2,26	0,00	0,17	0,00	100,00
<b>TOTAL</b>	<b>83,22</b>	<b>8,90</b>	<b>0,05</b>	<b>0,29</b>	<b>0,05</b>	<b>6,02</b>	<b>0,39</b>	<b>0,29</b>	<b>0,64</b>	<b>0,05</b>	<b>0,05</b>	<b>0,05</b>	<b>100,00</b>

Table 55: Distribution of the amphorae at the south-west corner site, according to the stratified evidence, based on sherd count and sherd count percentage, leaving out chippings.

LONG-DISTANCE TRADE AMPHORAE: MNI	DR 20	G4	DR 14	KEYA 16A	KEYA 19C	NAF AM	KAPITÄN 2	DR 7/10	HALTERN 70	BELTRAN II A/B	BAETICA undet.	undet.	TOTAL
L1	0	1	0	0	0	0	0	0	0	0	0	0	1
FL2	4	1	0	0	0	0	0	0	0	0	0	0	5
FL3	5	1	0	0	0	1	0	1	0	0	0	0	8
FL4	13	1	0	0	0	2	1	1	0	0	0	0	18
FL5	8	1	0	0	0	10	0	0	1	1	0	0	21
<b>TOTAL ROMAN LEVEL</b>	<b>30</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>53</b>
5+POST / POST	13	4	1	4	1	5	0	3	2	0	1	1	35
<b>TOTAL</b>	<b>43</b>	<b>9</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>18</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>88</b>

LONG-DISTANCE TRADE AMPHORAE: MNI %	DR 20	G4	DR 14	KEYA 16A	KEYA 19C	NAF AM	KAPITÄN 2	DR 7/10	HALTERN 70	BELTRAN II A/B	BAETICA undet.	undet.	TOTAL
L1		100,00											100
FL2	80,00	20,00											100
FL3	62,50	12,50				12,50		12,50					100
FL4	72,22	5,56				11,11	5,56	5,56					100
FL5	38,10	4,76				47,62			4,76	4,76			100
<b>TOTAL ROMAN LEVEL</b>	<b>56,60</b>	<b>9,43</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>24,53</b>	<b>1,89</b>	<b>3,77</b>	<b>1,89</b>	<b>1,89</b>	<b>0,00</b>	<b>0,00</b>	<b>100</b>
5+POST / POST	37,14	11,43	2,86	11,43	2,86	14,29		8,57	5,71		2,86	2,86	100
<b>TOTAL</b>	<b>48,86</b>	<b>10,23</b>	<b>1,14</b>	<b>4,55</b>	<b>1,14</b>	<b>20,45</b>	<b>1,14</b>	<b>5,68</b>	<b>3,41</b>	<b>1,14</b>	<b>1,14</b>	<b>1,14</b>	<b>100</b>

Table 56: Distribution of the amphorae at the south-west corner site, according to the stratified evidence, based on MNI and MNI percentage.

LONG-DISTANCE TRADE AMPHORAE: WEIGHT in kg	DR 20	G4	DR 14	KEYA 16A	KEYA 19C	NAF AM	KAPITÄN 2	DR 7/10	HALTERN 70	BELTRAN II A/B	BAETICA undet.	undet.	TOTAL
<b>ROMAN LEVEL</b>	<b>121298</b>	<b>14168</b>	<b>70</b>			<b>5751</b>	<b>311</b>	<b>162</b>	<b>170</b>	<b>146</b>			<b>142076</b>
5+POST / POST	21317	1601		1149	35	1033		493	417		38	38	26121
<b>TOTAL</b>	<b>142615</b>	<b>15769</b>	<b>70</b>	<b>1149</b>	<b>35</b>	<b>6784</b>	<b>311</b>	<b>655</b>	<b>587</b>	<b>146</b>	<b>38</b>	<b>38</b>	<b>168197</b>

LONG-DISTANCE TRADE AMPHORAE: WEIGHT (in kg) IN %	DR 20	G4	DR 14	KEYA 16A	KEYA 19C	NAF AM	KAPITÄN 2	DR 7/10	HALTERN 70	BELTRAN II A/B	BAETICA undet.	undet.	TOTAL
<b>ROMAN LEVEL</b>	<b>85,38</b>	<b>9,97</b>	<b>0,05</b>			<b>4,05</b>	<b>0,22</b>	<b>0,11</b>	<b>0,12</b>	<b>0,10</b>			<b>100</b>
5+POST / POST	81,61	6,13		4,40	0,13	3,95		1,89	1,60		0,15	0,15	100
<b>TOTAL</b>	<b>84,79</b>	<b>9,38</b>	<b>0,04</b>	<b>0,68</b>	<b>0,02</b>	<b>4,03</b>	<b>0,18</b>	<b>0,39</b>	<b>0,35</b>	<b>0,09</b>	<b>0,02</b>	<b>0,02</b>	<b>100</b>

Table 57: Distribution of the amphorae at the south-west corner site, according to the stratified evidence, based on weight and weight percentage.

distribution of the long-distance trade amphorae based on MNI (n: 53)

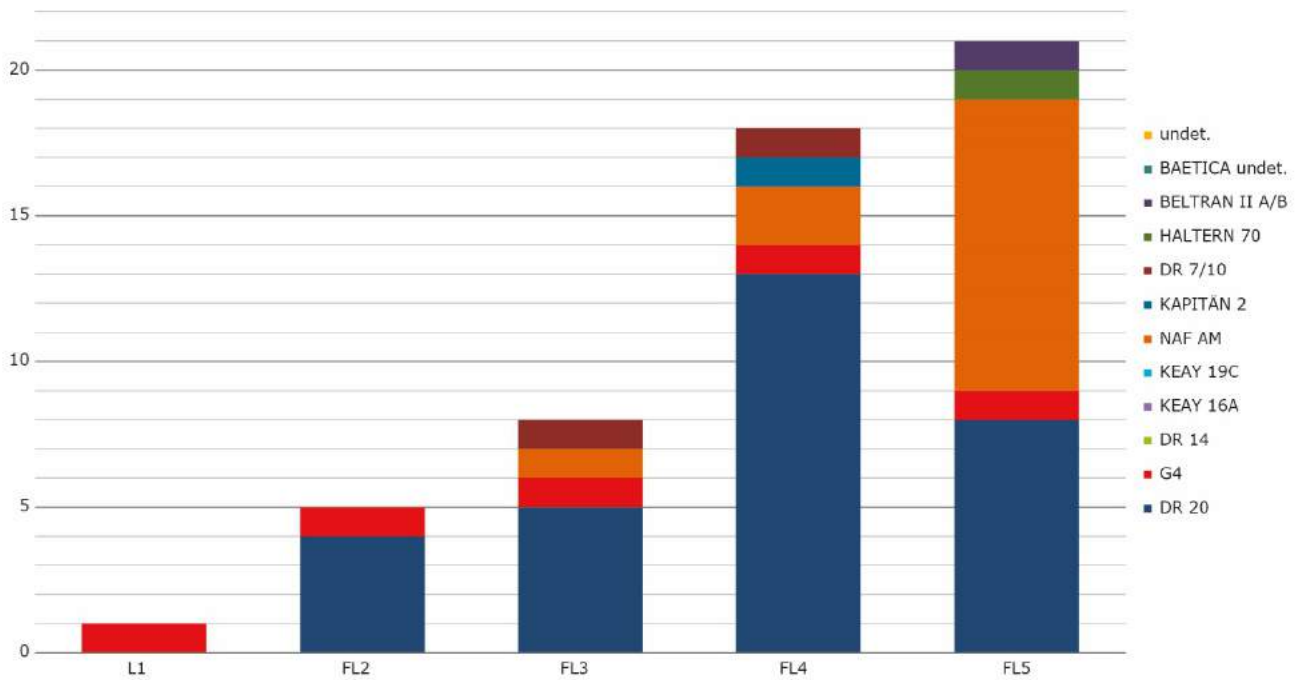


Fig 58: Visualisation of the distribution of the amphorae at the south-west corner site, according to the stratified evidence, based on MNI.

distribution of the long-distance trade amphorae based on MNI % (n: 53)

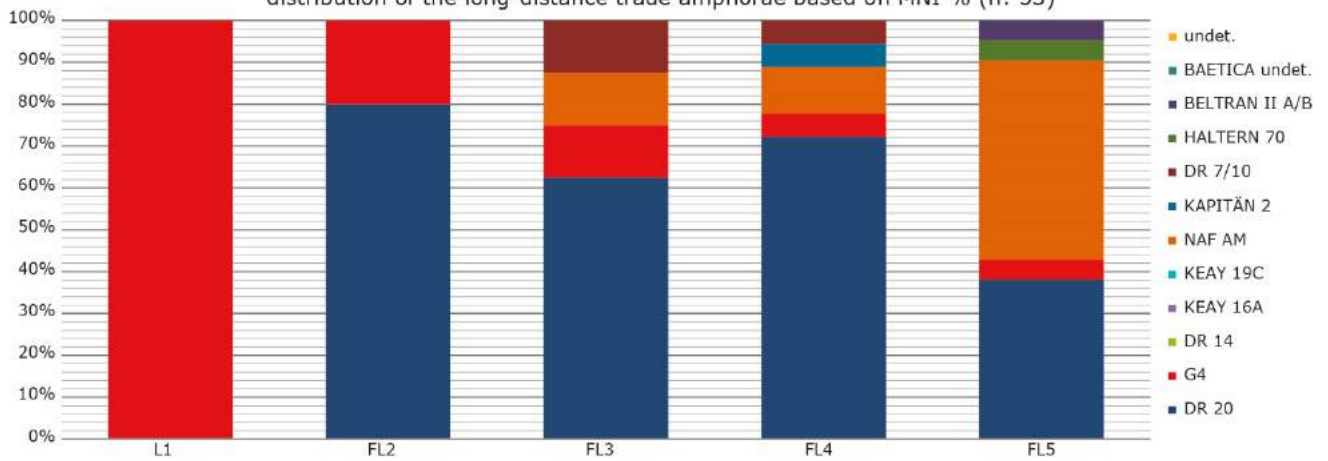


Fig 59: Visualisation of the distribution of the amphorae at the south-west corner site, according to the stratified evidence, based on MNI percentage.

distribution of the long-distance trade amphorae based on sherd count % (n: 1469)

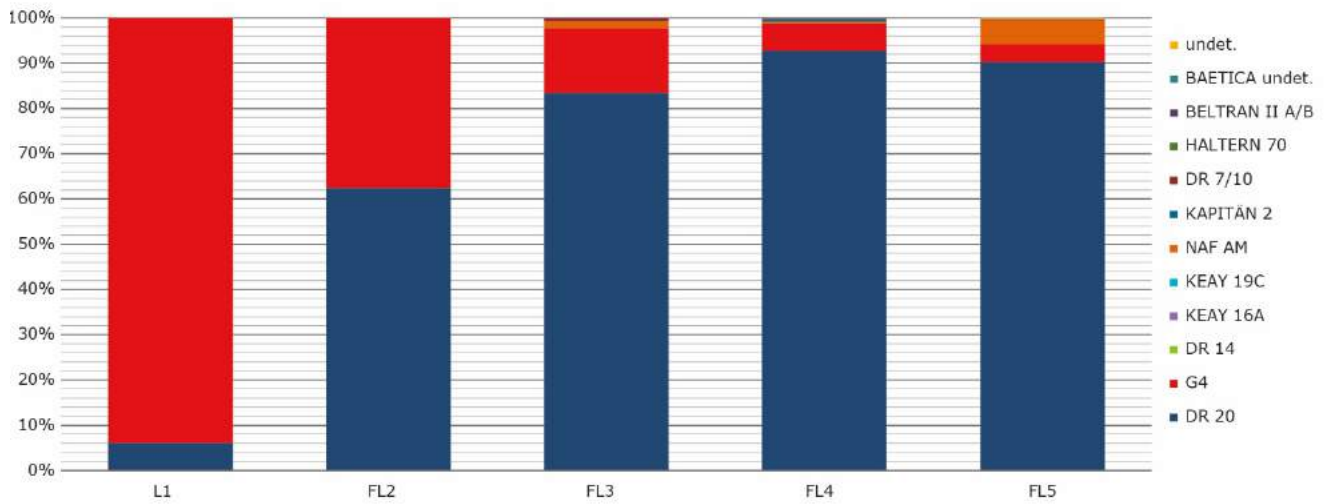


Fig 60: Visualisation of the distribution of the amphorae at the south-west corner site, according to the stratified evidence, based on sherd count percentage.

distribution of the long-distance trade amphorae based on weight (total weight: 168197 kg)

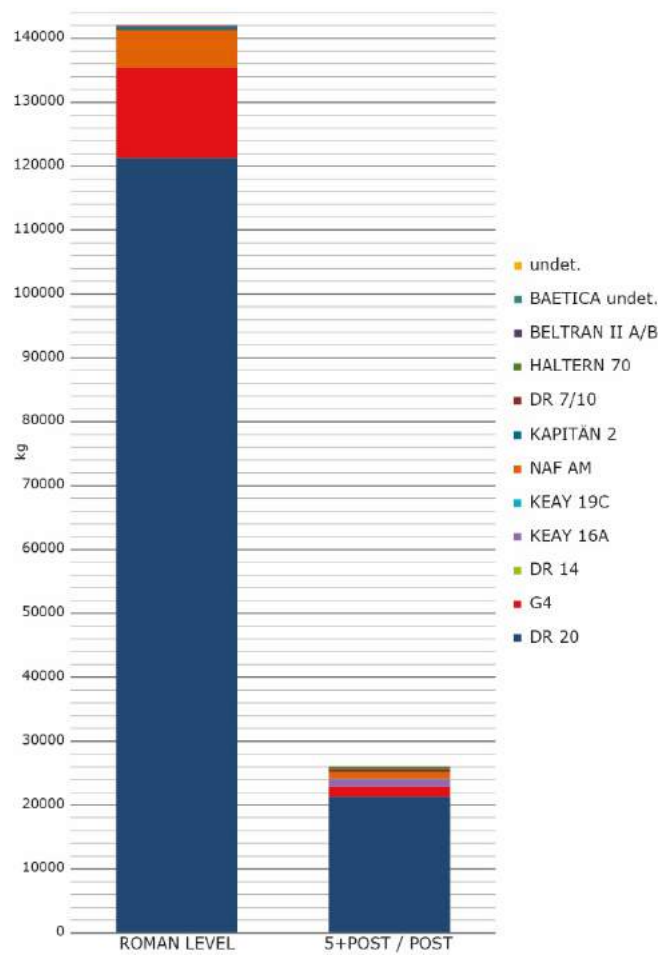


Fig 61: Visualisation of the distribution of the amphorae at the south-west corner site, based on weight: the Roman level versus the level 5+post/post.

### 3. Long-distance trade amphorae

#### 3.1. Dressel 20

##### 3.1.1. Presence and distribution (AM 1-46)

The *Baetican* Dressel 20 amphora form is a container for olive oil (Dressel 1899) and dominates the imported (*i.e.* over a long distance) amphorae assemblage of the south-west corner site, with 84.8% (1948 sherds) of the total amphorae assemblage, 89.2% (1510 sherds; 90.6% without the chips) when only the Roman level is considered (Tables 54-55). These numbers are confirmed by the weights: 84.8% of the total amphorae assemblage, 85.4% when only the ceramics of the Roman level are considered<sup>84</sup> (Table 57). However, these figures are somewhat biased by the fragmentation of some large parts of amphorae<sup>85</sup>, by the large size of several fragments and by the percentage of vessels preserved<sup>86</sup>. It is therefore more reliable to look at the minimum number of individuals (MNI) represented by the Dressel 20 amphorae: 43, or 30 when only considering the Roman level, respectively 48.9% or 56.6% of the amphorae assemblage (Table 56; Fig. 58-60). Still, all other amphorae groups represent minorities in comparison with the Dr. 20 group.

To the Roman level, 30 Dr. 20 groups, or individuals (MNI), can be assigned (Group A to zD), belonging to levels 2 (four groups), 3 (five groups), 4 (thirteen groups) and 5 (eight groups). To the post-Roman level, another thirteen groups can be attributed, of course all residual material, from the fort levels but likely as well from the earlier settlement or from the contemporaneous extramural settlement. Until level 4, the Dr. 20 amphorae dominate the amphorae spectrum; in level 5 its share diminishes to 38.1%, based on the MNI, with mainly the North-African amphorae becoming important (Fig. 58-60). However, all the Dr. 20's from level 5 should be considered as residual items.

That the *Baetican* olive oil amphora of the type Dressel 20 forms the largest share of the amphorae at the Oudenburg site, representing more than 80%, being followed in the first four levels by the Narbonese wine amphorae type Gauloise 4, is a familiar situation in *Britannia*, *Germania Inferior* and *Superior*, and *Gallia Belgica*, especially for the second half of the 1st and the 2nd century AD, but still persisting moderately in the 3rd century (van der Werff 1984; Martin-Kilcher 1987; Monsieur and Braeckman 1995a; Tyers 1996a; Carreras Monfort 1998; Monsieur 2005). Moreover, the dominance in Dressel 20 consumption seems to be mainly military-influenced (Remesal Rodríguez 1986; 1997; Carreras Monfort 1998; Carreras and van den Berg 2017, 369-371). The production of these amphorae ended under the reign of Gallienus, *c.* AD 250-260 (Remesal Rodríguez 1986). Also the dump of amphorae on the *Monte Testaccio* ceased at that time. As important reasons for the cut off of the trade network (at the recipient end) with the Mediterranean world, the invasions by the Franks and by the Alamanni in AD 260 combined with the following breakaway of the Gallic Empire by Postumus are considered (Monsieur 2015).

The end date in AD 260 for the Dr. 20 production implies that all Dressel 20 amphorae from the Roman level, originally (*i.e.* in their primary (consumption) function), must have belonged to the first three, perhaps four, fort levels and the earlier civil settlement level. This residuality is emphasised even more by the present rim and/or handle types and fabrics (see Plate CLX):

- group B: from level 3: handle type of the Severan period (AM 2-3)
- group D: from level 2: classic 2nd-century fabric (AM 4)
- group E: from level 5: classic 2nd-century fabric (AM 5)

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<sup>84</sup> These weights include the chips/clippings. The presence of chips/clippings was mainly characteristic for the Dressel 20 group.

<sup>85</sup> *E.g.* large body parts of Group Y, fragmented in 33 sherds but representing a weight of 12,296 gram; one part of amphora Group N found as 179 fragments in one context.

<sup>86</sup> *E.g.* the upper half of amphora Group J, accounting for 41 sherds and a weight of 7277 gram; the complete base of amphora Group Z, accounting for twenty sherds and a weight of 6293 gram.

- group Q: from level 4: classic 2nd-century fabric
- group R: from level 4: 2nd-century or early 3rd-century fabric
- group zD: from level 5: handle type and fabric typical for AD 150-250 (AM 20)

The find context of the Dr. 20 groups from the post-Roman level obviously also endorses the residuality of these amphorae, emphasised by their type and/or fabric referring to the first fort levels or even earlier (see Plate CLXIII):

- group post 1: 3rd-century fabric (AM 21)
- group post 5: 2nd-century type of rim (AM 25)
- group post 6: 2nd-century type of rim (AM 26)
- group post 7: 2nd-century type of rim and fabric (AM 27)
- group post 8: 2nd-century type of rim and fabric (AM 28)
- group post 12: classic Severan fabric (not ill.)

The presence of the typical handle type and of the classic fabric from the Severan period (respectively group B and group post 12) possibly indicates a fort occupation in that period (AD 193-235). This period becomes even more precise when the dating information of the stamps is added (see further).

### 3.1.2. Epigraphy (AM 29-46)

No *tituli picti* were preserved on the Dr. 20 amphorae of the Oudenburg site, but a total of 32 fragments show some kind of epigraphical information<sup>87</sup>: two stamps, 26 graffiti *ante cocturam* and four graffiti *post cocturam*.

#### 3.1.2.1. Dressel 20 stamps

An overview made by Monsieur (2015) of the Dressel 20 stamps in Northern Gaul and *Germania Inferior* for the period AD 200-260, in total 32, demonstrates the low quantity of stamp types and workshops in the 3rd century, in contrast to the situation in the first two centuries. This may be directly related to the economic decline in the 3rd century or the monopolisation of the market by important interest groups (Monsieur 2015).

The two Dr. 20 stamps of the Oudenburg site are remarkable in terms of content and of dating. Both can be assigned to the first half of the 3rd century.

The stamp L F C CV FC is located on the handle of group F, collected as residual find in level 5 (AM 6) (Plate CLX: 6). The first three letters represent the *tria nomina* of a Roman citizen; CV stands for *clarissimus vir* (person of senatorial or pre-senatorial rank); FC is the abbreviation of *Figlina Catonia*, the known Dr. 20 workshop at the modern-day village Las Animas (Isla del Castillo) in the valley of the Guadalquivir. The stamp can be dated to AD 220-240 (Berni 2008, 414-415; cf. Callender 1965, no. 851 (O)). Similar stamps of the same workshop were found in the North of Gaul at Arras, Braives (both France) and Arentsburg/Voorburg (The Netherlands) (Monsieur 2015). In Britain, this stamp type is known from London (two specimens), Corbridge (several), Binchester and Wroxeter (Carreras and Funari 1998, no. 188: 1-9).

The other stamp was found on the handle of the group 'post 3' (recovered from the post-Roman level) and reads II IVNI MELISSI / ET MELISS(a)E (AM 23) (Plate CLXIII: 23). *Melissi* and *Meliss(a)e* are likely the names in the genitive of a male and female member of the family of the *Iunii* running a potter's workshop identified at Las Delicias (Guadajoz) in the valley of the Guadalquivir (Berni Millet 2008, 426-432; cf. Callender 1965, no. 879 (B)). While the first generation of the *Iunii* is

<sup>87</sup> The amphora of group F bears a stamp and a graffito *ante cocturam*, resulting in a total epigraphical count of 29.



dated to AD 200-220 (found in our region at Bavay (France), Merendree<sup>88</sup> (Monsieur 1998) and Tienen (both Belgium)), this second generation of the *Iunii* belongs to the period AD 210-230. Similar stamps as the Oudenburg one were recovered at Liberchies and Tongeren (both Belgium) (Monsieur 2015). This stamp is well-known in Britain; similar stamps of two members of the *Iunius* family were found at the fort of Richborough (Bushe-Fox 1926, 86: 7) and at sites as Caerleon, Verulamium (several), London (several), Colchester (several), Ribchester, Cirencester, Lincoln, Wroxeter, York, Malton, Ospringe, Haudbridge (Carreras and Funari 1998, no. 271: 48-68).

The fragmented upper half of a Dressel 20 found in the large waste-pit OS 4980 (Group J) and secondary burnt, appears to have had his stamp chopped off (AM 10) (Plate CLXI: 10; Fig. 62). The shape of the break points to an intentional act of which the meaning and the timing remains unclear. Was it passed on to a different business enterprise in the Guadalquivir along with others as a 'spare'? Was a new owner mistrusting the writing which he could not read? Or was this a form of 'killing' the vessel?



Fig 62: The fragmented upper half of a Dressel 20 (Group J) found in the large waste-pit OS 4980 of fort period 4 and secondary burnt. His stamp seems to be chopped off (see detail to the right).

Another specific act of re-use is the chopping into small pieces which seems to be characteristic for part of the Dr. 20 assemblage which contains a large amount of clips/chippings (247 items) and small pieces of less than 4 by 4 cm (682 items) (with fresh breaks). What kind of purpose this deliberate processing of amphorae fragments had, remains unclear.

### 3.1.2.2. *Dressel 20 graffiti*

The graffiti *ante cocturam* preserved on Dressel 20 fragments from the south-west corner site consist of two types. Seven of them are impressions in the internal clay ball of the base: the clay ball shows one or two circular impressions (AM 8, 9, 11, 15) or one linear imprint (AM 16, 17, 18) (on Plates CLX-CLXII). They are believed to have had an apotropaic function in the manufacture process of the amphora (Martin-Kilcher 1987, 70-80).

<sup>88</sup> While Merendree was definitely an important settlement, there are more and more indications that there was also a military presence, possibly both in mid-Roman and in late Roman times (De Clercq 2009, 390).



Fig 63: Complete base of a Dressel 20 amphora with potter's mark near the base (on the photo to the right) (Group 7; AM19). The fragments of this amphora, originally most likely belonging to fort level 3, were found scattered over different levels.

All other nineteen graffiti *ante cocturam* most likely represent potter's marks (at least three specimens) and presumed so-called 'administrative' graffiti. One potter's mark from fort level 3 is completely preserved (AM19) (Plate CLXII: 19; Fig. 63). All 'administrative' graffiti are only partially preserved (AM 29-42) (Plate CLXIV). The preserved characters represent the last remains of *cognomina* (surnames) or a calendar date. These 'administrative' graffiti were characteristic in times of complex organisation of the manufacture process during peaks in the mass production of Dr. 20 amphorae. Two of these moments are known: the reign of Antoninus Pius and the period under the first Severi (Rodríguez Almeida 1993; Monsieur 2005; 2007). The writing on the Oudenburg fragments seems rather careless and may refer to the Severan period. Their presence could be another indication that one of the fort occupation periods at Oudenburg coincides with the period of the first Severi. Of the nine fragments of which the graffito can be identified with certainty as an 'administrative' graffito, one was found at level 3, four at level 4, one at level 4 or 5 and three in later levels. As will become clear below there is a case for seeing all these items as residual and deriving from what were originally all Severan arrivals at the site.

The graffiti *post cocturam* refer to activities of the fort inhabitants (or the civilians when a residual find) (AM 43-46) (Plate CLXIV: 43-46). The incised name(s), number(s), mark(s) are usually indicators for secondary use of the vessel, or later on of the vessel fragments (cf. *ostraca*), both well-spread phenomena (Martin-Kilcher 1987, 152-176; van der Werff 1989; van der Werff 2003; Monsieur 2005 and 2007). The Oudenburg fragments are however too fragmentary to deduce their meaning.

### 3.1.2.3. *Another Dressel 20 stamp found in 1977 on the fort area*

A remarkable stamp found in the collections of J. Mertens should be added here. The Dr. 20 amphora, of which the upper half was largely preserved (Fig. 64), was found in Trench X during the 1977 campaign in the northern area of the fort (see Plate III: ET11). The stamp, located on the handle, was not completely impressed, but the reading should be FIG E[D] / PP AE [F]. The stamp type is identical with Berni 2008, no. 17, displaying even the same die, but the Oudenburg stamp is apparently badly impressed resulting in a loss of the end letter of each line. The traditional interpretation for this stamp is FIG(lina) E[D](o?) / P(iana?) P(ubli) AE(li) F(usciani), pointing to the name of the *figlina* (pottery) 'Edopia' or 'Edopiana' (or with two p's) which is presented in an abbreviated manner. The name *Fuscianus* is certain, since a version is known with the complete name, also in the genitive (Berni 2008, 468-471; cf. Callender 1965, no. 33). No parallels are known from the North of Gaul and *Germania Inferior* (Monsieur 2015). In Britain however, his stamp has been found two times at Colchester and once at Verulamium (Carreras and Funari no. 174: 1-3).



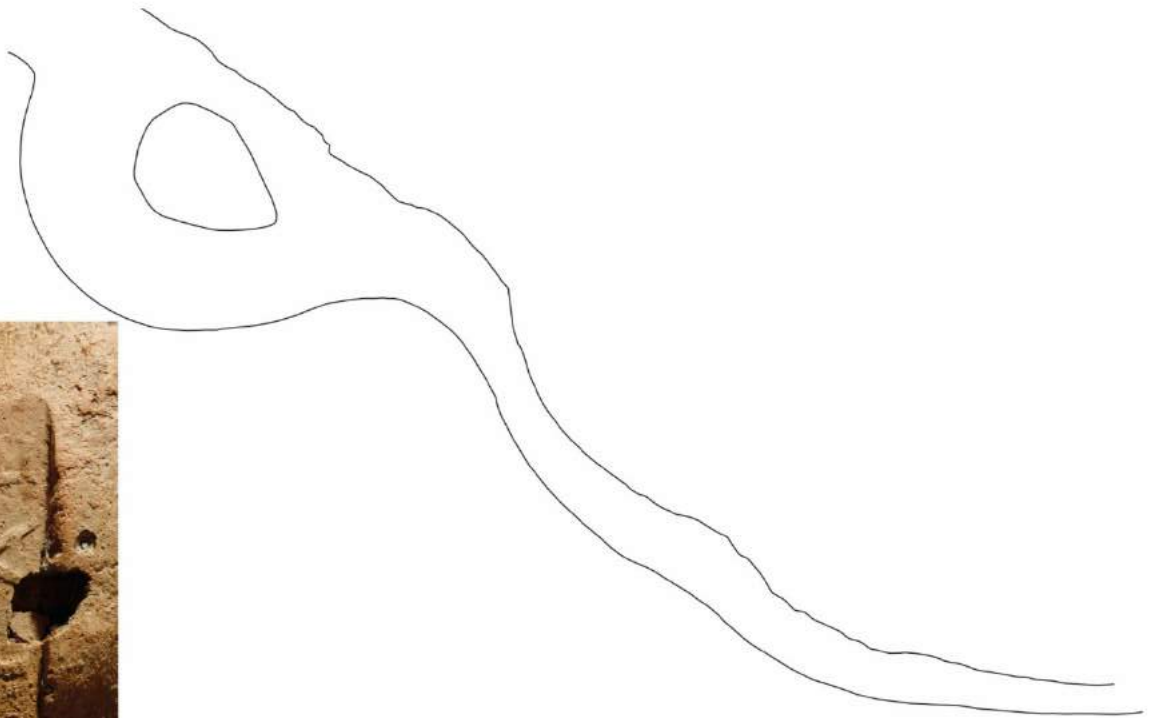
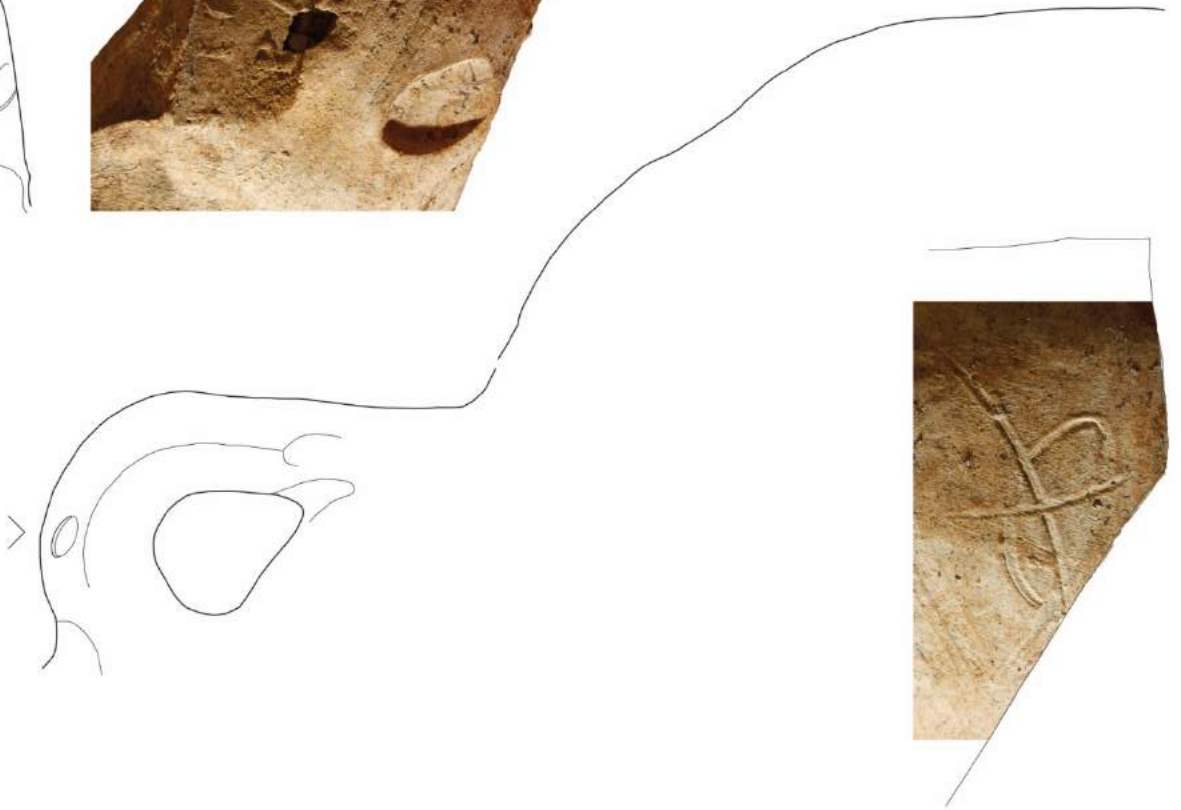


Fig 64: The upper half of a Dressel 20 amphora (no rim preserved) found in 1977 in the northern sector. (see previous page)

The Oudenburg name stamp is accompanied by a very rare, secondary stamp, in the form of an oval finger top impression. Normally this stamp shows a palm twig, sometimes an anchor or a dolphin (Berni 2008, 468-471). This secondary stamp on the Oudenburg amphora is however eligible, but according to well-preserved examples, the stamp is most likely completely abraded; besides, also the principal (name) stamp is only preserved vaguely. Thanks to the combination of dated *tituli picti* with the stratified evidence on the *Monte Testaccio* in Rome with consul dates, this stamp can be securely dated between AD 210-230, and most probably even between AD 220-225 (Berni 2008, 468-471).

The find context of this Oudenburg amphora assumes that the amphora has been deposited in its primary function. The find with code 77.0U.359 was excavated in 1977, in the southeast corner of trench X, south of the stone building (Fig. 65, top). The amphora was located at c. 3.00 m below a fixed point, corresponding with c. 2.75 m underneath the current running surface, in a greyish-green clayish sand to green clay level with lime and mortar pieces and some gravel<sup>89</sup>. The trench profiles indicate that this find was situated c. 0.20 m above the cultivated soil, in a level covering the layer which fills in the earliest features on site (Fig. 65, below). This stratigraphic information and the composition of the layer reminds one of the level 2 layers attested at the south-west corner site at the same height and equally characterised by clay and mortar and plaster fragments. The identification of this layer 38 of the 1977 Trench X / layer 31-32 of the South profile of Trench X as the occupation or, more likely, the closing off layer of fort level 2, implies that the dating of the Mertens amphora yields a major contribution to the dating of this level as a *terminus post quem* of AD 220-225.

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<sup>89</sup> Taken over from the description by J. Mertens of layer 38 (1977 Trench X, level 1) (Archive J. Mertens, NDO/Flanders Heritage Agency). This layer corresponds with Trench X, South profile, layer 31 and 32 and layer 4 on the East profile and the West profile.



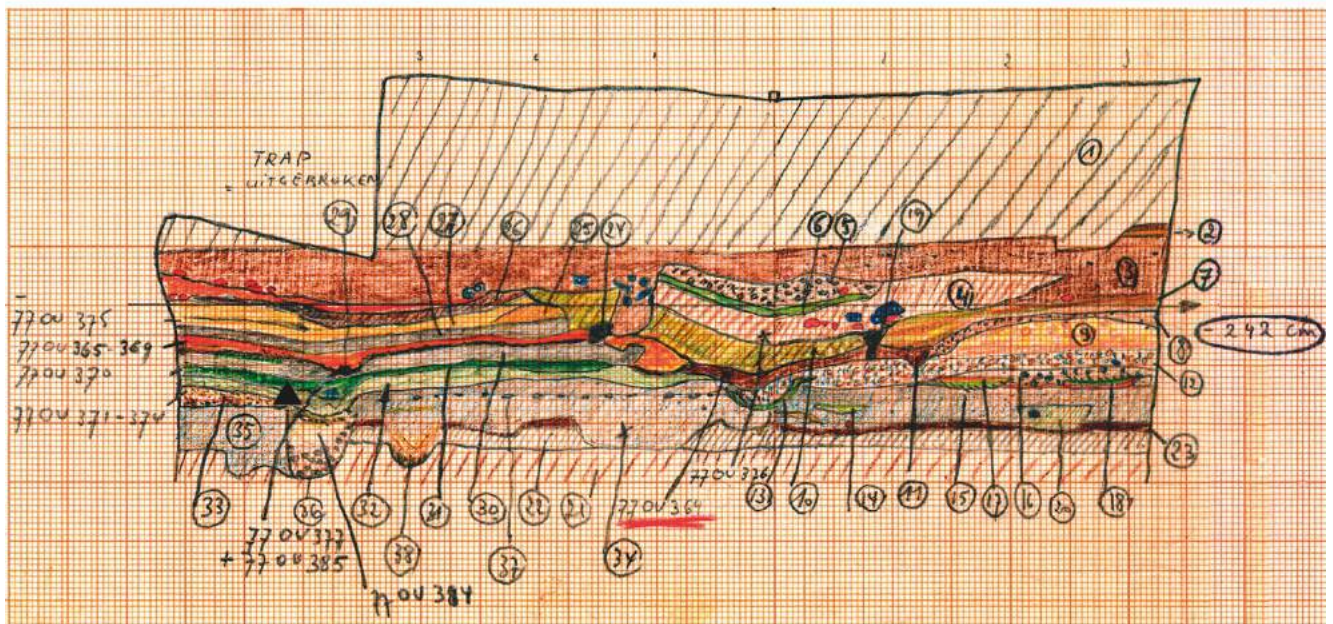


Fig 65: Localisation of the find context of the in 1977 in Trench X recovered upper half of the Dressel 20 amphora of Fig. 64. The black triangles mark the position of the amphora in the surface plan (top; see top right of the plan) and in the trench profile (below; see at the left side of the profile). Maps from the Archive of J. Mertens (NDO, now at the Flanders Heritage Agency).

### 3.1.3. The late Roman levels

The reinstatement of the unity in the Roman Empire by Aurelianus in AD 274 after the period of the Gallic Empire did not reactivate the large export of *Baetican* olive oil (Monsieur 2015). The form Dressel 23 dated to c. AD 250 until the first half of the 4th century (Monsieur 2015) was the smaller, thinner-walled successor of the Dr. 20 of which the production ceased AD 250-260 (see before). Remarkably, the Dr. 23 is not represented at the Oudenburg fort site, indicating a complete stop in the supply of olive oil from *Baetica* to the Oudenburg fort by that time.



### 3.2. Gauloise 4

The second largest group of amphorae is represented by the Gauloise 4 form (Laubenheimer 1989) (AM 47-55). Regarding number of sherds (over 8.0% of the imported amphorae assemblage: 142 sherds in the Roman level, 189 sherds when the post-Roman is counted in) and weight (just under 10%) (even somewhat less when chips and clippings are not counted in), this group is less important than the Baetican Dressel 20 amphorae. The MNI confirms these figures with 9.4% for the imported amphora individuals of the Roman level and 10.2% when looking at the total amphorae assemblage (cf. Tables 54-57; Fig. 58-61).

The Gauloise 4 amphora was produced from the 1st to 3rd century, mainly in the Narbonne region, but also in the wider area of the Languedoc and the Provence in France (Laubenheimer 1985; Laubenheimer and Marlière 2010, 39). According to numerous *tituli picti* the Gauloise 4 contained wine (Laubenheimer 2004).

Based on the diagnostic fragments, only six individuals can be distinguished in the whole G4 assemblage of the south-west corner site, although the rest of the G4 assemblage clearly consists of body sherds from different fabrics. However, since the differences in fabric are rather small, a further exhaustive division in fabric groups seemed not opportune; only two extra groups with distinctively separate fabrics could be discerned. This has to be taken into account when comparing the MNI with other amphorae groups, since this is a different approach as for e.g. the North-African assemblage where a fabric division of the body sherds based on visual and technical differences appeared to be very useful. The MNI of the G4 amphorae cannot be compared as such with the MNI of the African specimen.

Four G4 groups can be assigned to the Roman levels (AM 47-49; group D (not ill.)), another four groups to the post-Roman level (AM 51-53; group 'post 4' (not ill.)) (see Plate CLXV-CLXVI). With these low numbers, little significance can be attached to the sherd counts for each level: the high sherd count for level 1 represents in fact only one almost complete Gauloise 4 amphora.

This individual was represented by some 46 conjoining sherds producing an almost complete profile of a G4 with one complete and one partially preserved handle (Group A) (AM 47) (Plate CLXV: 47), and was found in/at the top of the earthen rampart of fort level 1. The shoulder of this amphora shows a complete potter's mark (see below). Although the chrono-typological sequence of the G4 is not so clear for the 2nd century, there can be no doubt that these amphorae are well-attested until the last quarter of the 3rd century (cf. the G4 of Boulogne: Dhaeze and Monsieur 2014). However, their typical 3rd-century appearance with broad shoulders and thick-set position of the handles against the rim is not exemplified in the Oudenburg individual which resembles more the earlier, 2nd-century types. The Oudenburg G4 amphora can be dated in the last quarter of the 2nd century AD (Martin-Kilcher 1994a/b; cf. Monsieur 2005: the Velzeke amphorae; Monsieur and Braeckman 1995a).

There are no reliable quantitative data regarding the importance of the export of these wine amphorae in the late 2nd and 3rd century and the end date of the production is still unknown. In any case, the G4 production did not extend into the 4th century and all sherds belonging to level 5 are to be considered as residual finds (group D, 'extra 1', 'extra 2' (AM 50); next to the four groups from the post-Roman level of course (AM 51-53)).

Two graffiti *ante cocturam* are preserved on G4 fragments. The almost complete Gauloise 4 amphora (Group A) from fort level 1 (see before) bears a complete potter's mark (AM 47) (Fig. 66). A body sherd from the post-Roman level shows a small fragment of a potter's mark (AM 54) (Plate CLXVI: 54). Two joining body sherds belonging to fort level 4 likely represent two graffiti *post cocturam* consisting of undefined scratches (AM 55) (Plate CLXVI: 55).



Fig 66: Gauloise 4 amphora (Group A) (AM 47) with potter's mark on the shoulder.

### 3.3. Dressel 14

Only one lower body fragment (not ill.) could be identified as part of a Dressel 14 amphora, a typical container for fish products, whether *salsamenta* or fish sauce. These amphorae are typical for the second half of the 1st to the first quarter of the 2nd century. Some later types, evolved out of the Dressel 14 form, can occur up to the second half of the 2nd century. The production is to be situated in the region of Cádiz (*Baetica*, Spain) (Martin-Kilcher 1994a/b; García Vargas 1998; Van Neer, Ervynck and Monsieur 2010). This fragment was a residual find in the post-Roman level and is another indication that material from the earlier civil settlement was brought onto the fort precinct together with the earth (cf. Chapter II, Section II.2.3).

### 3.4. Keay 16A

The *Baetican* Keay 16A amphora (Keay 1984) is represented by four individuals, all recovered from the post-Roman level as residual finds (11.4% of the individuals within the post-Roman level) (of which three are illustrated: AM 56-58) (see Plate CLXVI). This results in 4.5% of the site amphorae assemblage. The fragments are of the form Almagro 50, but the amphorae in question were not produced in *Lusitania* as one would expect<sup>90</sup> since the fabric here is *Baetican*. The type can be dated to AD 200-300 following the Lusitanian typology. One can surmise that the *Baetican* versions were also used for the transport of fish products. Similar amphorae were attested at Tongeren and Tournai (B) (Monsieur 2016). Surprisingly no single sherd of a Lusitanian amphora was identified in the Oudenburg assemblage which questions the real importance of the Atlantic as import route for Iberian amphorae. This seems to be confirmed by the lack of finds in *Britannia* (Carreras Monfort 1998, 165). At any rate, Lusitanian amphorae are extremely rare in the North-West of the Empire, apparently only present on important administrative and military centres as Bavay, Strasbourg, Trier and Mainz (see Monsieur 2016 with references).

<sup>90</sup> In the article Monsieur and Vanhoutte 2011 the fragments in question are wrongly listed as *Lusitanian*.

### 3.5. Keay 19C

Only one *Baetican* Keay 19C amphora (Keay 1984) could be identified<sup>91</sup> (AM 59) (Plate CLXVI: 59; Fig. 67): a rim fragment with the start of a handle recovered from the post-Roman level. This amphora also contained fish-based products. Dating to the period AD 350-410, it is the only amphora at the Oudenburg site which can be assigned with certainty to the (later) 4th-5th century.



Fig 67: The only Keay 19C amphora attested at the site.

### 3.6. North-African cylindrical amphorae (AM 60-64)

Although seemingly less important than the G4 amphorae based on the number of sherds (c. 1.8 to 2.0% of the imported amphorae of the Roman level (chippings counted in or not), 5.4 to 6.2% of the overall amphorae), the MNI of the North-African amphorae represents an important share of 24.5% of the Roman level amphorae, and 20.5% of the overall amphorae assemblage (cf. Tables 54-56) (illustrated: AM 60-64 (Plate CLXVII)). However, as already explained, this may not be considered as an absolute difference, since a division of the body sherds into fabric groups appeared to be very opportune for the North-African amphorae in contrast to the G4 fragments. Since the amount of diagnostic fragments in this assemblage is very limited, the visual and technical differences in fabric and surface of the body sherds (mainly the vertical scraping traces), which are very clear and very typical for this type of amphorae, were taken into account. However, these differences do not lead us to any chronological interpretations and the lack of diagnostic fragments makes it impossible to come to a proper typological differentiation.

With a total number of 123 sherds, only 25.2% of the North-African amphorae sherds belong to the Roman level (31 sherds). The North-African amphorae became important in level 5, the 4th century (with 26 sherds, while levels 2 and 3 respectively only yielded two and three fragments). However, the number for level 5 should probably be increased with the counts from the post-Roman level (92 sherds) as it is likely that most of these fragments were disturbed from level 5.

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<sup>91</sup> Identification confirmed by prof. D. Bernal Cassasola of the Cadíz University (Spain) and dr. Carlos Fabião of the Lisbon University (Portugal).



Fig 68: Composition of representative North-African cylindrical amphora fragments of the south-west corner site. The body fragments clearly show the vertical scraping traces.

As for the Roman level, thirteen individuals could be identified. Most of these body fragments cannot be assigned to a specific type (like *Africana I piccolo*, *Africana II grande*, Keay 25, 'spatheion', etc.) (Keay 1984; Bonifay 2004) which makes it impossible to date the fragments. At least three individuals are dated to the 3rd century and should be identified as the *Africana I piccolo* and *Africana II grande* types (Group H from fort level 3; Group C and Group J (AM 62) both from fort level 4). Nine individuals were recovered from fort level 5 and four individuals were found in the post-Roman level. The presence of the late type of Keay 19C makes it possible that at least part of



these individuals belong to later types as the Keay 25 and the spatheion, assignable to the second half of the 4th and the first half of the 5th century AD.

Two fragments are to be considered separately. Group K represents a body fragment of an unknown type of African amphora, for olive oil, salt fish or fish sauce, only generally datable to AD 200-450. The other distinguishable body fragment (Group L) belonged to a small-sized African spatheion, for salt fish or fish sauce. Both fragments were collected from level 5.

In the eleven remaining groups within this North-African amphorae assemblage, the fabrics NAF AM I and II (cf. Tomber and Dore 2000, 101-102) are equally represented. Six of the Roman level North-African individuals were made in the lime-rich NAF AM I fabric (groups D, E, F, H, with J and M standing for a variant of NAF AM I); five groups show the lime-poor NAF AM II fabric (groups A, B, C, G, I).

The North-African amphorae mainly derived from Byzacena and Zeugitana in Tunisia, maybe also from Tripolitania in Libya (Keay 1984; Bonifay 2004). The content of these amphorae is problematic. The regions of origin produced olive oil and were also important for the fish industry. Recent archaeometric research on African amphorae however has demonstrated that their function was most likely all-round (Piquès *et al.* 2008).

It is estimated that 10 to 20% of the *Monte Testaccio* consists of African amphorae (Blázquez Martínez and Remesal Rodríguez 2010). In the northern provinces the North-African amphorae finds only form a patchy distribution. The assemblage at Oudenburg is rather substantial but yields little diagnostic material. More diagnostic finds from the 3rd and 4th centuries were recovered at Tournai (Brulet *et al.* 1999), Bavay and Trier (Monsieur 2015). In *Britannia* these amphorae occur in moderate quantities (Tyers 1996b, 104). Very significant for the chronology of this amphora group is the shipwreck Cabrera III along the south coast of Majorca in which the amphorae types *Africana Grande II*, Dressel 20, Dressel 23 and Keay 16A were found together with a coin hoard kept in a Dr. 23 of 965 *sestertii* with a closing coin of AD 257 (Bost *et al.* 1992).

### 3.7. Kapitän 2

One small group of amphora sherds can be assigned to an Aegean Kapitän 2 (Kapitän 1972; Riley 1979) and can be attributed to level 4 (AM65) (Plate CLXVII: 65; Fig. 69). This Greek wine amphora is very typical for the 3rd century in the North, not in large quantities but regularly present (see e.g. at Braives (Brulet *et al.* 1992), Niederbieber (Oelmann 1914), Colchester (Williams *et al.* 1999)).



Fig 69: The Kapitän 2 amphora attested at the south-west corner site.

### 3.8. Dressel 7-10

Although no rim fragments were found (the only diagnostic piece is a handle fragment), five groups of Dressel 7-10 amphorae could be sorted based on differences in fabric: two individuals from the Roman level (one attributed to level 3, one to level 4), three from the post-Roman level. These types, made in *Baetica* and used for the transport of fish-based products, were very common in the North during the 1st century AD (Martin-Kilcher 1994a/b; García Vargas 1998; Van Neer, Eryvynck and Monsieur 2010) and are therefore most likely residual finds from earlier settlement features.

### 3.9. Haltern 70

The *Baetican* Haltern 70 amphora, used for the transport of olives in *defrutum*, was very common in the 1st century AD (Martin-Kilcher 1994a/b; Monsieur 2005). One rim fragment of a Haltern 70 with the start of a handle (AM66) (Plate CLXVII: 66) can be attributed to level 5, and is clearly a residual find since this specific amphora can be dated AD 75-100, based on the late rim type and fabric (cf. van der Werff 1990). The post-Roman level yielded another two groups of Haltern 70, of which one was heavily burnt<sup>92</sup>.

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<sup>92</sup> Because of this burning it cannot be absolutely excluded that it does not represent a Dressel 7-10 (Group Post 2).

### 3.10. *Beltrán II A/B*

A body sherd close to the base can be identified as a *Baetican* Beltrán II A/B<sup>93</sup>. This amphora was used to contain fish sauce. Found in level 5, this is definitely a residual find from a feature of the pre-fort settlement, since this amphora is conventionally dated to AD 75-150 (García Vargas 1998).

### 3.11. *Undetermined Baetican amphorae*

Of one body sherd from the post-Roman level, fine-walled with clear wheelturning traces, no certain identification is possible. The *Baetican* origin is clear, but both an identification as Dressel 20 or a Haltern 70 are possible.

## 4. Origins and products

The long-distance trade amphorae represented in the assemblage from the south-west corner site of the fort show a variety of products, coming from different regions. They contained olive oil, olives, wine or fish-based products originating from *Baetica*, *Gallia Narbonensis*, *Africa* and the Aegean sea (Tables 58-59; Fig. 70). The amphorae which can be undoubtedly related with the fort occupation evidence that wine was imported from *Gallia Narbonensis* (Gauloise 4) and from Greece (Kapitän 2), olive oil came in from Southern-Spain (Dressel 20) and perhaps also from North-Africa, and fish products were also imported from *Baetica* (Keay 16A, Keay 19C), perhaps also from North-Africa.

The demonstrated high residuality factor in the Oudenburg assemblage makes it difficult to conclude to chronological evolutions in the supply of the products, neither functionally nor regarding origin. A general picture of the mid-Roman versus the late Roman situation can be obtained though (Tables 58-59; Fig. 71-72). Olive oil and wine appear to have been standard products from fort level 1 onwards. Fish-based products only appear from fort level 3 onwards. North-African olive oil or fish products seem mainly popular in fort level 5. The dominance of the supply from *Baetica* is above all determined by the Dressel 20 amphorae. The presence of the fish sauce amphora Keay 19C for fish-based products in the last fort level together with most likely some late Roman North-African amphorae (containing olive oil or fish products) indicate that amphorae were still traded and transported to the Oudenburg fort up to at least the 4th century, although in small quantities.

CONTENT	wine	olive oil	olives	fish products	olive oil or fish products	unknown
<b>total in MNI</b>	10	43	3	14	17	2
<b>mid-Roman in MNI</b>	5	30		4		3
<b>late Roman in MNI</b>				1		10

Table 58: The amphorae attested at the south-west corner site, in terms of content, based on MNI.

ORIGIN	Baetica	Gallia Narbonensis	Africa	Aegean	unknown
<b>total in MNI</b>	<b>59</b>	<b>9</b>	<b>18</b>	<b>1</b>	<b>1</b>
<b>mid-Roman in MNI</b>	34	4	3	1	
<b>late Roman in MNI</b>	1		10		

Table 59: The amphorae attested at the south-west corner site, in terms of production region, based on MNI.

<sup>93</sup> This type is very close to Dressel 14; it cannot be excluded with certainty that it does not consist of one and the same group (see Dressel 14).

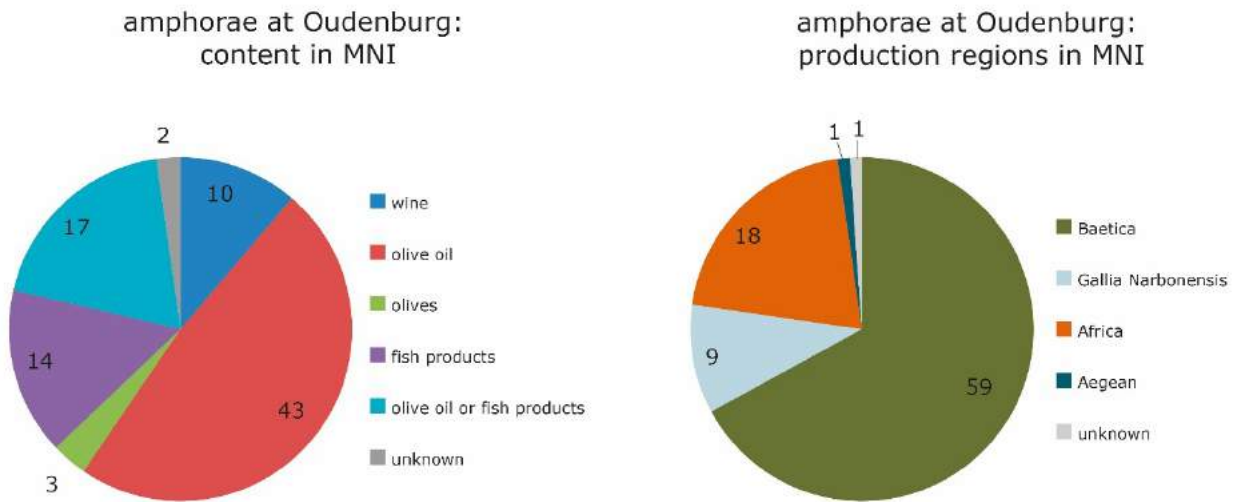


Fig 70: To the left: general distribution of the products represented by the amphorae recovered from the south-west corner site, based on MNI. To the right: general distribution of production regions represented by the amphorae of the south-west corner site, based on MNI. Since several individuals are clearly residual items from the pre-fort settlement, these graphs can only be considered as representative for the Oudenburg occupation more in general.

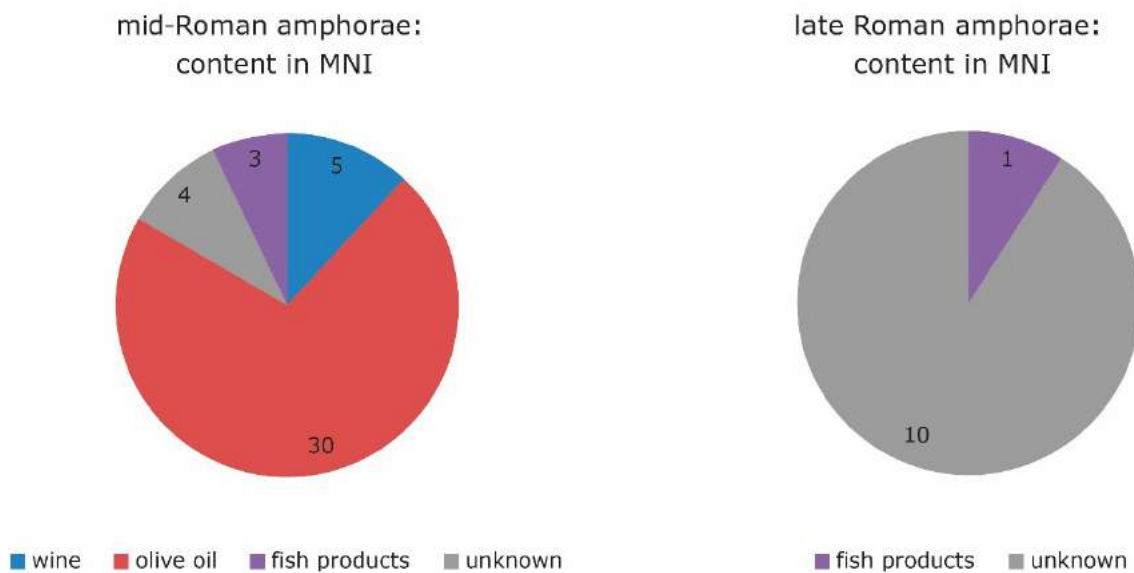


Fig 71: The content represented by the mid-Roman versus the late Roman amphorae of the fort occupation, recovered from the south-west corner site. Excluded from the counts are: the mid-Roman amphorae found in the post-Roman level as they may be residual from the extramural settlement, amphorae from the post-Roman level which cannot be classified into mid-Roman/late Roman, residual amphorae from the pre-fort settlement (Dressel 14, Dressel 7-10), Haltern 70, Beltrán II). Note: from the North-African amphorae (of which the content is unknown) it cannot be excluded that at least part of them is residual from the mid-Roman level.

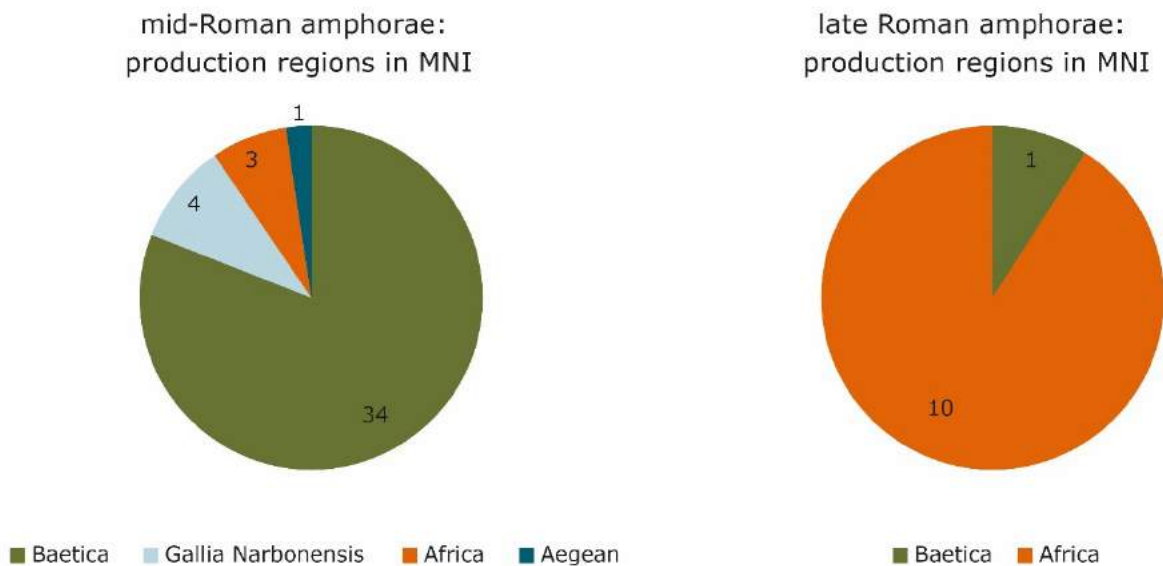


Fig 72: Production regions represented by the mid-Roman versus the late Roman amphorae of the fort occupation, recovered from the south-west corner site. Excluded from the counts are: the mid-Roman amphorae found in the post-Roman level as they may be residual from the extramural settlement, amphorae from the post-Roman level which cannot be classified into mid-Roman/late Roman, residual amphorae from the pre-fort settlement (Dressel 14, Dressel 7-10), Haltern 70, Beltrán II).

## 5. Regional amphorae

Apart from long-distance trade amphorae, also (supra-) regional amphorae circulated in the Oudenburg fort<sup>94</sup>. Besides only one body sherd of a Gauloise 4 imitation in Noyon fabric, the regional group consists of Gauloise 13 sherds and fragments of 'orange and red' amphorae. Both these amphorae groups, characterised by mostly flat bases, were supplied by river.

### 5.1. Gauloise 13

With 78 sherds the North-Gaulish Gauloise 13 form (see for G13: Baudoux *et al.* 1998) represents only a small share in the total amphorae assemblage (illustrated: AM 67-74) (see Plate CLXVIII). The thick-walled heavy Gauloise 13 is inspired by the Dressel 20, but with a triangular-sectioned or rounded rim and a base which is either flat or in the form of a pointed button. The handles are often characterised by a 'beak' on the upper part (Baudoux *et al.* 1998) (cf. AM70).

Based on the rim fragments, only four G13 individuals can be discerned in the assemblage of the south-west corner site. As for the G4 amphorae, a further division of the G13 body sherds was not possible since the differences in fabric are too small. Moreover, it is important to take into account that this fabric is macroscopically identical to that of part of the North-Gaulish dolia<sup>95</sup>. Three G13 individuals can be assigned to the Roman level; one to the post-Roman level. Except for one fragment from level 2, most likely intrusive, the G13 amphorae are present from level 3 (18 sherds)

<sup>94</sup> Van der Werff *et al.* 1997, 3 already pointed to the presence of regional amphora productions in *Britannia*, *Germania Inferior* and *Superior*.

<sup>95</sup> Therefore, it is very difficult to distinguish non-diagnostic wall sherds to the one or the other ceramic group. The thickness of the walls was in most cases decisive, but for some fragments there is reasonable doubt. The dolia were not studied in depth within the present research. Several fabrics can be identified, of which most are of North-Gaulish origin, amongst which are the LLW1 fabric, the Scheldt-Valley fabric and the fabric identical to that of the G3 amphorae. One group shows a fabric close to that of the Rhineland mortaria of Soller and is characterised by applied bands with finger impressions. It is our aim to study the dolia in the near future.

onwards, but due to the lack of diagnostic fragments no MNI was assigned to this level. The appearance of Gauloise 13 at fort period 3 is in line with the dating of this type of amphora.

The G13 amphorae can be dated from the middle of the 3rd century until the start of the 5th century (Laubenheimer and Marlière 2010, 69). They were made in the north of France – so far only two workshops are known, at Cambrai (Nord) and at Bourlon (Pas-de-Calais), but there were definitely more of them – and were distributed in *Gallia Belgica* (Baudoux *et al.* 1998; Laubenheimer and Marlière 2010, 69). The Gauloise 13 amphora is also attested at the fort of Aardenburg (Dhaeze 2013, 219). The content of these amphorae is unknown but their imitation of the Dressel 20 form suggests that they served the commercialisation of a local oil, maybe nut oil (Baudoux *et al.* 1998; Laubenheimer 2000; Laubenheimer and Marlière 2010, 69).

Apart from the end of a graffito *ante cocturam*, an interesting graffito *post cocturam* can be read on a lower body fragment, close to the base (AM 74) (Fig. 73), consisting of five joining sherds, yielding: [Vict]oris(?) xx[x] or 'from Victor xxx' (cf. Bakker and Galsterer-Kröll 1975). Although the genitive form of the graffito points to an owner's mark followed by a number, the location of the text suggests that the amphora must have been broken before the text was scratched since the text is written upside down. It is possible that the xxx was an older graffito, seen the tight position after the name.



Fig 73: Graffito post cocturam on a lower body fragment, close to the base, of a Gauloise 13 amphora (AM 74).

## 5.2. 'Orange and red' amphorae

With this general term, a group of amphorae is assigned which are characterised by an orange or red fabric. They show the same fabrics as those occurring in the flagon wares. Only eight rims can undoubtedly be categorised as amphorae, and thus distinguished from the flagon group, either through their heavy rim shape or their large diameter. However, based on the differentiation in the (heavy) handles, at least fifteen individuals can be listed (only four illustrated: AM75-78) (see Plate CLXVIII).



Three fabrics can be identified: a regional ((North?-)Menapian?) fabric, the Low Lands Ware I fabric (Degryse and De Clercq 2008) and the so-called 'Scheldt-Valley' fabric (van der Werff *et al.* 1997). Future research on this group is an important consideration to identify more specifically the different fabric groups of which probably more fragments are still present in the flagon ware category. The line between 'storage flagons' and 'amphorae' is thin; since no complete profiles were found, the assessment could only be based on diagnostic fragments such as the rim and the handles. The flagon group not only consists of tableware flagons but also storage ware flagons or jar-amphorae. Therefore, it is possible that a share of (thick-walled) body sherds identified within this flagon group may have belonged to amphorae in the same fabric.

Three amphorae, respectively belonging to fort levels 3, 4 (AM 75) and 5, show a fabric identified under the binoculars as presumably the red variant of the North-Menapian coarse reduced fabric. Typologically, the illustrated amphora with triangular rim (AM 75) has paralleled finds in the North of France, more specifically in the productions of the Cambrai region<sup>96</sup>. At Famars this type was found in contexts from the end of the 3rd century onwards (Willems *et al.* 2017b). The type resembles the Gauloise 13, identified by Laubenheimer and Marlière for North-West Gaul, and occurring from the middle of the 3rd century onwards (Laubenheimer and Marlière 2010; see before). The Oudenburg example differs slightly in having a neck a bit more elongated. As Laubenheimer and Marlière already mentioned, other potteries than those in the Cambrai region must have produced this regional amphora. With the Oudenburg examples, a (North?-)Menapian production can be assumed.

A handle recovered from level 4 is assigned to the LLW1 fabric, a fabric well-represented in the flagon wares. The Low Lands Ware 1 was produced most likely in the the Lower Scheldt Valley, near the Scheldt estuary in the Bergen-op-Zoom area in the Netherlands. The core of the distribution area was the Lower Rhine, the Meuse and the Scheldt valleys (Degryse and De Clercq 2008).

Six rims and six handles, clearly representing different individuals, are characterised by the quartz-rich so-called Scheldt-Valley fabric with typical white slip identified by van der Werff *et al.* 1997. The twelve Scheldt-Valley amphora fragments were spread over levels 4, 5 and the post-Roman level but appear to be dominant at fort level 4 (accounting for half of the examples). Together with the (lower Scheldt Valley) LLW1 fabric, this 'red' Scheldt-Valley fabric also dominates the group of the flagon wares<sup>97</sup>. These Scheldt-Valley amphorae, investigated by van der Werff *et al.* 1997, have a reach in the north-west of *Gallia Belgica* and *Germania Inferior* with the core of the distribution area in East-Flanders (Monsieur and Braeckman 1995a; van der Werff *et al.* 1997, 4). These amphorae are also well-present at the Aardenburg fort (Dhaeze 2013, 219). Isolated finds have even been recorded in *Britannia* and Friesland. Originally it has been thought that the production originated from the Waasland region, based on the close resemblances with the 'Rupel' clay (van der Werff *et al.* 1997, 5). De Clercq (1995) however argues that the strong distribution of these amphorae in the Scheldt Valley is merely a reflection of a commercial trade link. Recent research has confirmed that these amphorae, or at least part of them, have been produced further upstream in the North of France. The comparison of samples of so-called Scheldt Valley flagons of Zele, Seclin, Hénin-Beaumont and Velzeke with sherds of so-called Scheldt Valley amphoras from pottery kilns found in Dourges (see Thuillier 2004) resulted in the conclusion of a macroscopically identical fabric (Vanhoutte *et al.* 2009c, 114). The production at Dourges has been confirmed by recent archaeometric analysis on Scheldt-Valley amphorae found at *Colonia Ulpia Traiana* (Xanten) (Schmitz 2014). The eight kilns so far discovered at Dourges produced a wide spectrum of forms, including flagons and amphorae. The latest closely dated amphorae at Dourges date around AD 270, but the kilns were active until the (early) 4th century (Thuillier 2001; 2004; Leroy *et al.* 2012). At *Colonia Ulpia Traiana*, a large group of such Scheldt-Valley amphorae has been found, spread

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<sup>96</sup> With thanks to S. Willems for pointing to these parallels.

<sup>97</sup> Within the category of the flagons, a classification was made using 'flagon tableware' and 'flagon storage ware' to avoid an attempt to define the division between 'flagons' and 'jar-amphorae' based on the number of handles since the represented tableware flagons could apparently be both one or two-handled. The division between the tableware and the storage ware flagons was made based on the size of the vessel, the thickness of the wall, the coarseness of the fabric and the finish of the exterior surface (see also Vanhoutte *et al.* 2009c).

over several sites in the city (Schmitz 2014, 345: Abb. 30). The largest portion belonged to contexts dated to the 3rd century; only a small assemblage can be dated to the 2nd century. A typological study has enabled Schmitz to elaborate further on the classification of van der Werff *et al.* (1997) in three form groups (Schmitz 2014, 326 ff.). Oudenburg example (AM 76) finds close parallels in Gruppe 1 ('*amphoren mit bandförmigen Rand*') as rim R2 (Schmitz 2014, 328, 334: Abb. 19). The Oudenburg examples with heavy bead rim (AM 77-78) correspond with Gruppe 3 ('*amphoren mit Dreiecksrand*'). What products these regional amphorae transported, is uncertain. No residue of their original content has been preserved. The hypothesis of the storage and transportation of beer (presumably 'ale') has been put forward by van der Werff *et al.* 1997, 12-13; also the possibility of fish sauce has been discussed by them. However, Schmitz questions these suggestions and puts forward wine as possible content, mainly based on typological correspondences with South-Gaulish wine amphorae with wide bases and the different distribution area the latter represent (Schmitz 2014, 351). The Dourges amphorae only appear at the Oudenburg site from fort level 4 onwards, *i.e.* the later 3rd century. Although wine as content can be a valid possibility, one should not overlook possible changing consumption (food/drinking) patterns in this period in the North-West which can be a reason for a downfall of the wine import.

(North?-)Menapian and Low Lands Ware 1 productions seem to have ceased to exist by the late 3rd century; the presumed regional/North-Menapian amphora from fort level 5 should be considered as a residual item. The 'Scheldt Valley' amphorae from Dourges only occur from fort level 4 onwards, with examples mainly at this level and some in later levels. With the kiln sites at Dourges still producing in the 4th century, it cannot be determined whether the finds in the later levels are residual material or not. However, when looking at the flagon ware counts throughout the Roman level, the sherd count and MNI percentages are still in line with those from earlier levels, albeit overall in limited numbers. The complete flagon ware group at fort level 5 can hardly be explained as residual. Since it can be assumed that the local/regional (and LLW1?) industries ceased to exist by the late 3rd century, it is likely that a large part of the Scheldt-Valley flagons (and amphorae) at fort level 5 are in their original level. It is therefore certainly likely that in the 4th century the regional supply by means of amphorae was provided by G13 amphorae and also Dourges amphorae, both transported by river (the Scheldt) and further by roads.

## APPENDIX 15 - Eifelware and other coarse oxidised wares at the south-west corner site

### 1. Introduction to the assemblage

The coarse oxidised ware assemblage comprises the pottery fired in an oxidised atmosphere and showing (heavily) tempered fabrics. The fabric gives the pottery a rough feel mainly due to the abundant inclusions often protruding the surface (cf. Willems 2005, 71).

The coarse oxidised wares, *i.e.* mainly the *Eifelware*, are primarily considered here in light of the trade networks they represent. Within the context of this thesis, only the coarse oxidised wares recovered from the Roman level itself are studied in depth, to come to diachronic information.

In total 1911 coarse oxidised sherds were collected at the south-west corner site. 'Only' 21.1% (403 sherds) was recovered from the Roman level itself. The assemblage of 1508 sherds from the post-Roman levels and from the transition level between the top of the Roman level and the dark earth shows an absolute dominance of the late Roman Mayen wares. Since this is a mainly 4th-century (and later) production, it emphasises the considerable disturbance of the latest fort level and the high degree of absorption of material from fort level 5 into later levels. While the coarse oxidised pottery sherds from the Roman level consist mainly of fragmented material, many larger fragments were recovered from the later levels. This may be an indication that much of this material has not been moved over a long distance and supports the idea that it originally belonged to the latest fort level.

This coarse oxidised assemblage was studied based on sherd count and minimum number of individuals, mainly defined by the rims. The 403 coarse oxidised pottery fragments represent at least 119 individuals. They comprehend *Eifelware*, Eifel imitations and a few North-African coarse oxidised wares next to some isolated vessels of different origins (Table 60; Fig. 74).

	sherd count	sherd count %	MNI	MNI %
URM CO OX	111	27,5	16	13,4
SPE CO OX	13	3,2	3	2,5
MAY CO OX	223	55,3	74	62,2
EIF CO OX	14	3,5	4	3,4
EIF IMI CO	7	1,7	5	4,2
MEV CO OX	5	1,2	3	2,5
RME CO OX	14	3,5	10	8,4
NAF CO OX	15	3,7	3	2,5
LLW1 CO OX	1	0,2	1	0,8
<b>TOTAL</b>	<b>403</b>	<b>100,0</b>	<b>119</b>	<b>100,0</b>

Table 60: Distribution of coarse oxidised fabrics at the south-west corner site, based on sherd count and MNI.

The typologies to which is referred, are those of Niederbieber (NB) (Oelmann 1914), Alzei (Unverzagt 1916), Krefeld-Gellep (by Pirling 1966), Trier (Hussong and Cüppers 1972) and the one recorded by Bruet (1990).

general distribution of the coarse oxidised fabrics,  
based on MNI (n: 113)

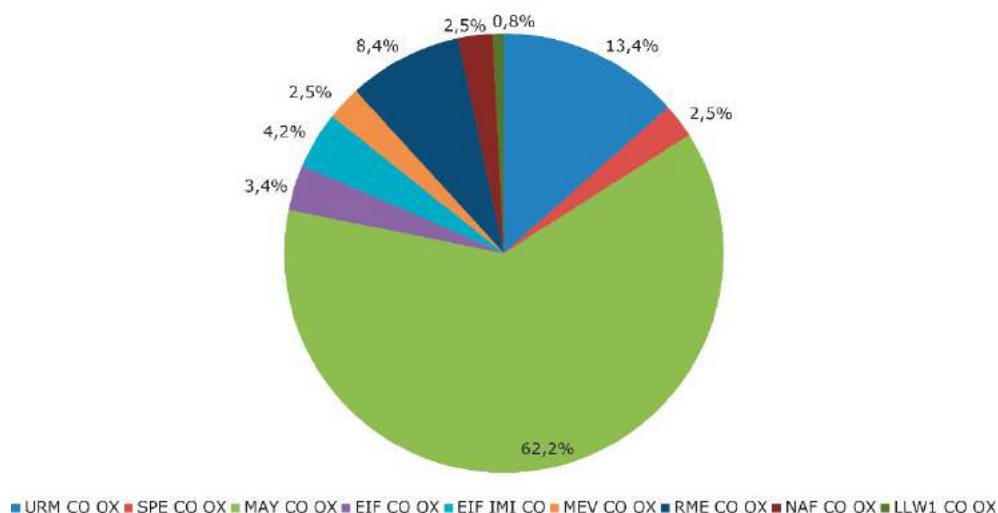


Fig 74: General distribution of the coarse oxidised fabrics attested at the south-west corner site, based on MNI.

## 2. Eifelware

The coarse oxidised pottery assemblage is dominated by the *Eifelkeramik*. The fabrics were identified under the binocular based on comparisons with clippings from ceramics from the potteries of Speicher, Mayen and Urmitz/Weissenthurm. Sherds from different Speicher potter workshops in the Speicher forest, dated to the late 3rd – 5th centuries AD, were provided by W. Czysz (Bayerisches Landesamt für Denkmalpflege, Thierhaupten (Germany)). Sherd fragments from the pottery excavations of 1986/87 at Mayen, from the site between Siegfriedstrasse and the Genoveva Castle, dated to the 5th century AD, were sent over by L. Grunwald from the Römisch-Germanisches Zentralmuseum in Mayen. S. Friedrich (Römisch-Germanisches Zentralmuseum, Mayen) provided clippings from Ofen I, II/III and X at Weissenthurm, site Am guten Mann-Kreis Mayen-Koblenz<sup>98</sup>.

In total 361 sherds (89.6%) or at least 97 individuals (81.5%) of the coarse oxidised assemblage belong to *Eifelware* productions. Most of the fabrics can be attributed to the three named production centres. Of fourteen sherds, representing four MNI, their origin in the Eifel region cannot be specified due to burning or because of their indistinctive fabric in comparison to the mentioned productions.

### 2.1. Urmitz/Weissenthurm imports

With 111 sherds or 16 MNI the Urmitz/Weissenthurm production of the Neuwieder region in Germany (Friedrich 2012) represents respectively 27.5% or 13.4% of the *Eifelware* assemblage. This fabric can generally be described as a fabric with many smaller quartz and rock fragment inclusions in a layered structure (Plate CLXXII: 3) (cf. Willems 2005, 88 for a detailed fabric description). Present at fort level 3 with eleven sherds but solely one MNI, the Urmitz/Weissenthurm is only of some significance from fort level 4 onwards. The production at Urmitz/Weissenthurm is widely accepted to be dated between c. AD 190 and 260 based on its dominant presence at Niederbieber and its absence at Alzei and other late Roman military sites (Friedrich 2012, 264; Brulet 2010c, 404; Kiessel 2008, with all concerning references; Gilles 1994, 117). Bakker (1996, 222), Kiessel (2008, 129) and Friedrich (2012, 264) however point to a continuing, limited

<sup>98</sup> With many thanks to prof W. Czysz, dr. L. Grunwald and S. Friedrich who were so kind to send over some clippings and pottery sherds.

production in the 4th century. A late dating at Oudenburg seems to be indicated by some of the forms in the Oudenburg assemblage.

The *Urmitzer* bowls from the Roman level at the Oudenburg site represent the NB 103 (one MNI), the NB 111a(?) (one MNI) and the NB 104/Alzei 28 bowl (two MNI). Although the NB 104/Alzei 28 individuals both concern burnt individuals, their layered fabric points to an Urmitz/Weissenthurm origin. One of these bowls, attributed to fort level 4, is a fine-walled version showing an L-shaped, hooked rim, resembling rim form B of Brulet (2010c, 415) but with an undercut lip like rim form F. According to the chronological classification by Brulet (2010c, 418) these rim forms can respectively be dated in the last quarter of the 3rd century and first quarter of the 4th century AD, which is in line with the presumed end date of fort level 4. The other Alzei 28 bowl belongs to fort level 5 and fits in well with a 4th-century date.

The represented dishes in the Urmitz/Weissenthurm fabric belong to the types Alzei 29 (one MNI), Alzei 34 (one MNI) (Plate CLXXII: 2) and Pirling 128 (two MNI). The dish Alzei 29 and the dish Alzei 34 are late Roman types dated well into the 4th century (Brulet 2010c, 409 and 418). They are both recovered from fort level 5. While they confirm the 4th-century date of this level, they are *an sich* also a confirmation for the late Roman distribution of the *Urmitzer Ware*. The type Pirling 128 has known a long life with several subtypes, from the early 3rd until the first quarter of the 4th century (Brulet 2010c, 418), which is in line with the find contexts at the Oudenburg site: one found at fort level 4, the other at fort level 5. Found on top of the floor level of mortar-loam gravel situated to the north-west of the bath house (see Plate XXXV: j), the latter fragment supports a date in the first quarter of the 4th century or not much later for fort level 5A.

The Urmitz/Weissenthurm pots are of type NB 87 (one MNI), NB 89 or transition NB 89/Alzei 27 (six MNI). One NB 87 is characterised by a painted decoration of red circles on the body (Plate CLXXII: 1). Its sixteen fragments were found scattered over seven contexts of fort level 4. A painted geometric decoration is a known phenomenon on thin-walled pots of the Urmitz/Weissenthurm industry (Friedrich 2015, 31: Abb. 5)<sup>99</sup>. NB 89 pots, characterised by rim form A of the classification by Brulet (2010c, 418) and dated to the 3rd century, occurred in fort level 3 (one MNI), 4 (two MNI) and 5 (two MNI). Most likely the latter two MNI represent residual, dug-up items. Two body fragments and one base fragment of unattributed bowls or dish forms and of which is uncertain whether they represent three different bowls or dishes, show a painted brownish-red decoration on the interior. One body fragment displays straight and wavy lines, another a straight brown line; the base fragment has vague traces of radial lines.

## 2.2. *Speicher imports*

With only thirteen sherds, representing three MNI (but no rim fragment preserved), the supply of coarse oxidised products from Speicher seems to have had hardly any significance for the Oudenburg fort. The present products can possibly be considered as 'accidental' imports or casual items, brought in together with other Eifel products. The Speicher productions are characterised by a wide variety of fabrics and colours. In general, the quartz-rich Speicher fabric resembles that of the Mayen production but lacks the sedimentary rock inclusions and is completely restricted to quartz, often surrounded by iron oxides (Tomber and Dore 1998, 71; Willems 2005, 90; Brulet 2010c, 419). No exact forms can be identified in the Oudenburg assemblage; the three MNI (based on base fragments) represent pots or jugs (no rims preserved)<sup>100</sup>. Being a pottery production late Roman in date starting in the late 3rd century and ending in the late 4th century (Gilles 1994, 125), the single Speicher body fragment found at level 1 is to be considered as an intrusive find. Fort

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<sup>99</sup> Similar pots of type NB 90 with painted red circles were also produced at the Heerlen potteries (Van Kerckhove *et al.* 2014, 260 and 262: Fig. 7, type CW OX-HEERL-P1). The fabric of the considered Oudenburg vessel can be identified as belonging to the Urmitz/Weissenthurm production though. Moreover, the date of AD 130-200 for the Heerlen pots would be too early for the Oudenburg example recovered from fort level 4.

<sup>100</sup> Comparison under the binocular with the clippings of the respective kiln sites has enabled to revise the identification of the 'Speicher' Alzei 34 dish found in the double well OS 2562 (Vanhouette *et al.* 2009b, 40) as a Mayen product.

level 4 comprised nine Speicher sherds (one MNI), emphasising the late (end) date of fort level 4. Fort level 5 only yielded three fragments (one MNI).

### 2.3. *Mayen imports*

The Mayen production, represented by 223 sherds or 72 MNI, dominates not only the Eifel assemblage (61.8% or 75.8% depending on the quantification method) but also the coarse oxidised assemblage at the Oudenburg site in general (55.3% or 63.2% depending on the quantification method). With a variety in colours, the fabric can generally be described as very hard, with a hackly fracture and an abundant and dense temper of irregular quartz with few to many volcanic inclusions; the surface is generally very rough due to the protrusion of large inclusions (Fulford and Bird, 1975, 171-173; Redknap 1988, 5; Tomber and Dore 1998, 70; Redknap 1999, 58; Willems 2005, 90). The Roman Mayen industry and distribution is generally dated from the end of the 3rd to the middle of the 5th century AD (Unverzagt 1968, 34; Fulford and Bird 1975, 179; Gilles 1994, 119; Redknap 1999, 61; Willems 2005, 91; Grunwald 2012, 112). Stamm (1962, 103) believed that the production already started in the second half of the 3rd century AD.

The Mayen assemblage of the Oudenburg site is dominated by pots (33 MNI) and bowls (23 MNI), besides some dishes (10 MNI) and jugs (4 MNI). Only one possible lid and one beaker, presumable of the type Brulet H2, were counted.

All bowls can be attributed to the type Alzei 28 (Plate CLXXII: 14-17). Bowl Alzei 28 (or Pirling 120) was, according to the grave finds at Krefeld-Gellep, in use during the entire 4th century (Pirling 1966, 92). The Oudenburg bowls display a variety in the rim morphology with rim types mainly characteristic for the late 3rd and first half of the 4th century<sup>101</sup> (cf. Brulet 2010c, 416). Worth mentioning is the presence of a very small version with vague exterior rim groove and interior rim undercut.

Eight of the ten dishes are of the type Alzei 34 (or Pirling 126), equally a type that was in vogue during the entire 4th century according to the finds at the graveyard of Krefeld-Gellep (Pirling 1966, 94). The rim types A, B and C discussed by Brulet (2010c, 417) and dated to the second and third quarter of the 4th century all occur at the Oudenburg site. One rim shows a transition between rim form A and C with a hooked block-rim and rather rounded exterior side (Plate CLXXII: 18). Also present is a rather fine version of a Alzei 29 dish and a dish Pirling 128a.

The jugs are of type Alzei 30 variant with grooved block-rim, of type Brulet H15? (Plate CLXXII: 4), type Pirling 109 and type Pirling 110, all represented by only one individual.

All pots but three (29 MNI) can be attributed to the lid-seated jar of the transition type NB 89/Alzei 27 or type Alzei 27 displaying a variety in rim forms between heart-shaped and sickle-shaped (Plate CLXXII: 5-13). At the Krefeld-Gellep graveyard this was one of the most common pottery forms; there, a distinction was made between Pirling 105 and Pirling 106 with ear (Pirling 1966, 84-88). The rim profiles at Krefeld-Gellep show a large variety, as is also the case at Oudenburg. Von Petrikovits (1937, 333) saw an evolution in the rim profile from hearth-shaped in the second half of the 3rd century, over triangular- or trapezoid-shaped to a sickle-shaped profile with more or less sharp inclined angle. Gilles (1994, 119) concluded to an evolution from a tendency to more angular forms, over more or less obtuse forms from the beginning of the 4th century, to sickle-shaped profiles from the middle of the 4th century onwards.

The transition type NB 89/Alzei 27 is already present in the large waste-pit OS 4980 of fort level 4 (Plate CLXXII: 10). Alzei 27 rim forms A, C, E, H described by Brulet (2010c, 415) can be recognised next to transitional forms<sup>102</sup>. Remarkable is the late, very compact rim with sharp, thin, highly

<sup>101</sup> More detailed analysis of the Alzei 28 rim types, together with the ones present in the later levels, is envisaged for the future to investigate whether more chronological data can be retrieved out of rim type morphology.

<sup>102</sup> Like for the Alzei 28, the Alzei 27 rim type will be investigated further with the completion of the assemblage by those rims present in the later levels.



raised inner lip and blocked outer lip (Plate CLXXII: 13). Next to the dominance of the NB 89/Alzei 27 type, other pot types form a minority: Pirling 100 (two MNI), a possible Pirling 104 (one MNI) and one two-handled pot type Trier II 91b. Type Pirling 104 possibly occurred from the late 4th century onwards (Hussong 1936, 78).

The late Roman date of the Mayen products indicates that the few isolated sherds recovered from level 1 (three fragments, all from earthen rampart which was cut by the robber trench of the later stone defensive wall), fort level 2 (four fragments, for two MNI) and fort level 3 (six fragments for two MNI) are intrusive items. Only one of the latter was found in a closed context, pit OS 80925, however, at the top of it, and being cut by the robber trench of the bath house it was possibly an intrusive item.

The start of the Mayen import is most likely to be situated at fort period 4. Fragments designate three individuals to be attributed to this level 4: a dish Alzei 34, a jug Pirling 110 and a pot NB89/Alzei 27. Recovered from a top layer of fort level 4, the dish fragment Alzei 34 may well have been an intrusive find since its date from the second quarter of the 4th century is not in line with the other dating evidence for this level. The NB 89/Alzei 27 pot fragment displaying a rim form resembling form C of the Brulet classification (Brulet 2010c, 415), was recovered from the large waste-pit OS 4980 (see Vanhoutte *et al.* 2009c, 116) and points to a date from the late 3rd century onwards. With sixteen sherds representing three MNI, the Mayen supply seems however hardly of much importance at Oudenburg in the late 3rd century. This changes completely at fort level 5. The Mayen presence at fort level 5 with 65 MNI should however be increased with the large share of Mayen products recovered from the post-Roman level and from the levels forming the transition between the Roman and post-Roman level ('5+post' level).

### 3. Eifel imitations

A minority of nineteen pottery sherds, representing twelve MNI, mainly quartz-rich creamy and orange to red fabrics, are fragments of which the fabric could not be identified with certainty. At least some of them, like the rim of a pot of transition type NB 89/Alzei 27 with a lid-seated rim profile found in the construction pit of structure OS 2562 of fort level 5, are Eifel imitations produced in the *civitas Tungrorum* (MEV CO OX). Others can only generally be described as Rhine-Meuse-Eifel products (RME OX).

A very small assemblage of seven sherds, representing three MNI (EIF IMI CO), displays a whitish to whitish-grey fabric, often with white to yellowish margins (sometimes even yellow-orange), quartz-rich with very fine quartz, translucent to white, with some orange to red iron oxides. The most characteristic element are the long, angular, white flint inclusions which are sparse to abundant and irregularly spread in the fabric and protruding through the surface. The sherds are further characterised by a smoked surface. Two body sherds were recovered from fort level 3, one from fort level 4. The other sherds belong to fort level 5, the level to which the three individuals are attributed. The represented forms are the NB 104 bowl (one MNI) (Plate CLXXII: 19) and the NB 89 pot (two MNI) (Plate CLXXII: 20). The same forms are represented in the post-Roman levels and mainly in the mixed levels at the top of the Roman level at the transition to later levels. In the 5+post and post-Roman levels this fabric occurs with 34 sherds accounting for fourteen MNI. Their main occurrence in the transition level (with eighteen fragments) suggests that these Eifel imitations originally most likely belonged to fort level 5. This can of course also be valid for the other fragments in the post-Roman level. Of the fourteen MNI of these later levels, only one NB 104 can be identified; all other individuals are NB 89 pots. The typology of this production is clearly inspired by the Eifel products, not the late Mayen rim types but the common rim types from the Urmitz repertoire. Although the origin of this production could not yet be identified, the Eifel region seems to be excluded based on the fabric. White flint inclusions have also been recognised with a few late Roman vessels in reduced fabric. Fragments of three cooking pots with gully-rim (form inspired by the NB 89/Alzei 27 pot in *Eifelware*) in light grey fabric with white flint inclusions (in small quantities or abundantly) were found in the double well OS 2562: one in the construction pit, one in the shaft between both frameworks and one in the final infill of the inner well (Vanhoutte *et*

*al.* 2009b, 41-42, 52 (fig. 25: 28), 59, 87 (fig. 52: 11), 88). Some 30 fragments of such pots, accounting for five MNI, were also found in the secondary infill layers of basin OS 4923 (Mignauw 2005, 152) (Fig. 75). So far, the exact origin of this fabric is unknown, but it is clear that they are products from the (wider) region imitating Eifel pots NB 89/Alzei 27. This fabric has also been attested during recent excavations at Saint-Quentin (l'Aisne, France) and Hérin (Valencienne, Fr.) (Vanhoutte *et al.* 2009b, 42, with references to pers. comm. by respectively X. Deru (Université Lille 3) and R. Clotuche (Inrap)).

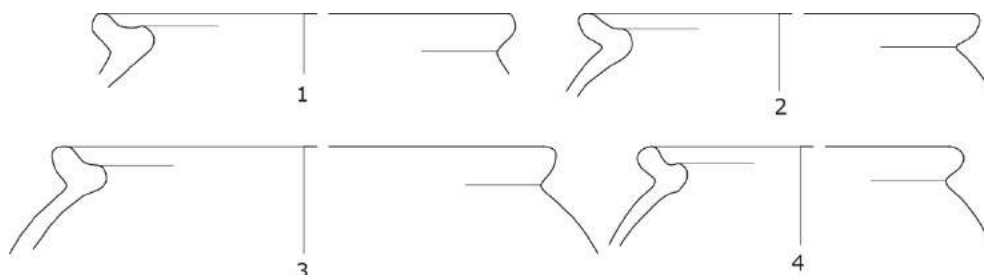


Fig 75: Eifel imitations from the secondary infill of the large basin OS 4923.

#### 4. Some North-African culinary imports

The coarse oxidised assemblage of the Roman level comprises a remarkable presence of fifteen sherds in a North-African fabric, accounting for three MNI.

A large lid fragment was recovered from pit OS 72136 at fort level 1 (Plate CLXXIII: 21). Its use as lid is confirmed by its smoked rim (Plate CLXXIII: 21b). A sherd from the same lid, but not joining, was found at fort level 4. The lid is characterised by a hard, orange red fabric with a moderate tempering of angular, translucent quartz and a few milky-white quartz, some brown-red iron oxides and hardly any visible limestone inclusions (Plate CLXXIII: 21c)<sup>103</sup>. The represented type is Hayes (1972) 196 and is generally dated to AD 70-250 (Bonifay 2004, 225-227; Raynaud 1993, 89). Several of such lids were recovered from the Scoglio della Sirena wreck discovered in 1990 off the coast of Crotona (Italy) of which the cargo is datable to the mid-3rd century (Medaglia and Rossi 2010). With the 'foot' or lid top missing, the type and therefore a more precise date for the Oudenburg lid cannot be specified<sup>104</sup>. The fabric of the lid has been confirmed by drs. C. Hasenzagl (Ghent University) to be of North-Tunisian origin, very similar to the fabric common with African Red Slip A production which has a strong resemblance to the African cooking wares A and CA. Neither the workshop(s) of the early African tableware nor those of the cooking wares A and CA have yet been discovered. However, the assumption that they were produced in the region of Carthage is generally accepted (pers. comm. C. Hasenzagl).

The same fabric is identified for the second vessel, a pot with S-profile, everted ribbon-shaped rim, wheel-turned ribs on the body and a flat cut base with sharp inclination to the body (Plate CLXXIII: 22a/b). So far no parallel was found for its form.

A fine-walled base fragment with raised centre displays a similar fabric as the previous individuals, but with black iron oxides (Plate CLXXIII: 23b). The outer surface of the fragment (both of base and body) is fired in a reduced way (Plate CLXXIII: 23a)<sup>105</sup>. This fragment was recovered from fort level 5.

<sup>103</sup> North-African origin of fabric confirmed by X. Deru (Université de Lille).

<sup>104</sup> Type A (with foot or marked lid top) is dated by Bonifay 2004, 227 from the Severan period onwards; Type B without 'foot' is dated earlier.

<sup>105</sup> The inner half of the fabric is oxidised; the exterior half is reduced.

Worth mentioning is another presumed North-African product found in the post-Roman level (Plate CLXXII: 24). It displays a different fabric, less hard, orange-red, with many angular quartz and large limestone inclusions. A white slip covers the surface. The form of the vessel is unclear, but the fragment may have been the foot of a miniature vessel (a miniature amphora?).

## 5. Some exceptional coarse oxidised products

A bowl with horizontal rim, comparable to type Vanvinckenroye (1991) 498, has a rather micaceous oxidised fabric, and may be related to the Low Lands Ware 1 industry (Plate CLXXIII: 25). It was found at fort level 3. A bowl with long ribbon-shaped rim originated from the Bavay-Famars region (Plate CLXXIII: 26). The latter was found in the post-Roman level and it cannot be proven whether it is a residual item from the fort or whether it was brought in with the dark earth from outside the fort precinct. Both individuals, identified by S. Willems, can be classified as kitchen ware and represent exceptional items in the pottery assemblage at Oudenburg.

Worth mentioning is the isolated find recovered from the dark earth of a body fragment in *Rotbraun Gestrichene Keramik* or *Rotgestrichene Keramik* (identification by W. Dijkman (Maastricht)). This pottery group is regarded as a late Roman derivative of the samian production (Grunwald 2012, 122; Brulet (2010e, 279)); the coarse, orange fabric of the considered single sherd has put it technically in the coarse oxidised group. The *Rotgestrichene Keramik* appears to have been produced at Trier and Mayen and the start of this pottery production is dated to c. AD 430 (Grunwald 2012, 122; Brulet in Brulet (2010e, 280)). Although caution is needed with only one sherd, this single fragment at the south-west corner site may be a piece of evidence that the final abandonment of the Oudenburg fort is to be situated after AD 430. At the same time, the almost complete absence of this ware may be an indication that the fort was abandoned not (much) later than c. 430 AD. However, also this has to be considered with caution: the distribution area of the *Rotgestrichene Keramik* is yet attested not further west than the Meuse Valley and the absence of this ware in Britain may indicate that neither the Oudenburg fort was supplied by this pottery group. The (so far) single sherd found at the Oudenburg fort may represent a casual item brought in together with other Eifel products.

## 6. The supply of Eifelware and other coarse oxidised wares and their wider significance.

In general, when compared to the reduced wares, the coarse oxidised wares only represent small quantities in the pottery assemblages at the Oudenburg fort. However, in the 4th century, the supply of *Eifelware* became significant - from 0.40% of the total MNI at fort level 4 to 2.52% at fort level 5<sup>106</sup> -, and it was the Mayen production which was almost completely responsible for this (Table 61). Moreover, these percentages are biased by the large residual component in the other pottery categories, such as the samian wares, reduced and handmade wares, with the latter being almost entirely residual at fort level 5. With a production dated mainly in the late 3rd and 4th century, the residual factor within the Mayen wares is far less significant. However, a large number of *Eifelware* has been recovered from the dark earth level as residual material which implies that our present picture is far from complete.

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<sup>106</sup> This percentage is biased by the counts of the reduced wares, since these comprise a lot of residual, dug-up material from the earlier levels (as has been proven by the pottery assemblages of the key contexts: see Addendum 10). Therefore, a higher percentage compared to the reduced wares can be taken into account for the coarse oxidised wares (since the residuality factor within the Mayen wares at fort level 5 is obviously much lower (since it was a mainly 4th-century production)).

	L1	FL2	FL3	FL4	FL5	TOTAL
URM CO OX			1	7	8	16
SPE CO OX	<i>1</i>			<i>1</i>	<i>1</i>	3
MAY CO OX	1	2	2	4	65	74
EIF CO OX				1	3	4
EIF IMI CO			<i>1</i>	<i>1</i>	3	5
MEV CO OX		1		<i>1</i>	1	3
RME CO OX		1	3	5	1	10
NAF CO OX	1				2	3
LLW1 CO OX			1			1
TOTAL	3	4	8	20	84	119

Table 61: Distribution according to the stratified evidence of the attested coarse oxidised fabrics in the Roman level at the south-west corner site, based on MNI. Counts in grey: considered as intrusive at the respective level; counts in Italic: only

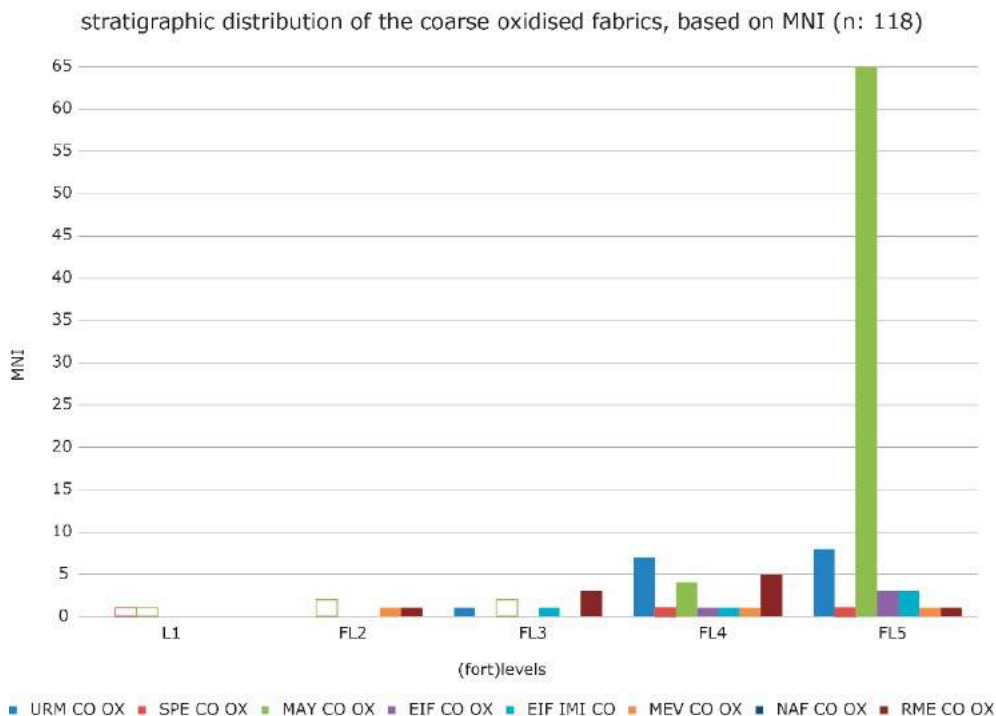


Fig 76: Visualisation of the distribution according to the stratified evidence of the attested coarse oxidised fabrics in the Roman level at the south-west corner site, based on MNI. Blank cube: fragments considered as intrusive.

Although representing only small quantities, the Urmitz/Weissenthurm products appear to be the most important Eifel import at fort level 4 in the late 3rd century. With an absence of *Urmitzer Ware* at levels 1 and 2, a scarce presence at level 3, and a dominance at fort level 4, the imports at Oudenburg represent the latest phases of the Urmitz/Weissenthurm productions. It is generally believed that this industry produced in the period c. AD 190-260, but there are indications for a continuing production at least in the early 4th century. Late Roman forms in the Urmitz repertoire at the south-west corner site (a dish Alzei 29, a dish Alzei 34 and a bowl Alzei 28) and belonging to fort level 5, provide evidence for a continuing production.

In the 4th century, at fort level 5, the coarse ceramic trade from the Eifel region becomes significant with the Mayen ware dominating the Eifel supplies, especially when taken into account that a lot of the Mayen vessels recovered from the later levels most likely originated from fort level 5. At several graves of graveyard A, a Mayen bowl, dish, pot or beaker served as grave good (cf. Mertens and Van Impe 1971). Four types can be recognised: bowl Alzei 28, dish Alzei 34, pot Pirling 100 and beaker Brulet H2. Speicher products hardly reached the Oudenburg fort and may have been brought in as casual items together with other Eifel imports.

Remarkable is the absence of Mayen vessels in the primary fill of the large basin OS 4923, in the construction slots OS 8670 and OS 7200, and in the primary infills of the inner well of OS 2562, all

four contexts can be assigned to fort level 5B. In the final waste fillings of structure OS 2562, though, several Mayen vessels were recovered, but as can be deduced from *e.g.* the several cross joins with material found in the surroundings, this structure was filled in at the end of the fort's occupation or after its abandonment, with earth and waste already on site. A study in depth of the rim profiles of the Mayen vessels found in the post-Roman levels is clearly needed to come to chronological conclusions about the latest Mayen vessels.

Although they represent only a few isolated finds, the presence of some North-African coarse products at the south-west corner site is obviously highly significant. The isolated find of a North-African lid in a pit of level 1 (cross joining a small fragment dug-up at fort level 4) is possibly to be interpreted rather as a casual import brought in by a soldier as part of his personal baggage. Carrying such an ordinary culinary vessel this far most likely indicates that its possessor was a native of North Africa. The presence of a base of a fine-walled vessel (a jug?) and an almost complete cooking pot at fort level 5 may be brought in in a completely different way. With the supplies of North-African amphorae which became important products at the fort in the 4th century, it is possible that these two vessels came along as casual side-products.

## APPENDIX 16 - Pompeian red wares at the south-west corner site (By S. Willems)

### 1. Introduction to the assemblage

The dishes with internal red engobe, the so-called Pompeian Red ware dishes, belong to the cooking vessels; the engobe prevented the food from sticking to the surface. The first examples of these dishes found in the North of Gaul originated from Campania and are considered as signs of the culinary adaptation to the Roman way of cooking. Only a few workshops seem to have produced this type of vessel indicating a specialisation of certain potteries. The largest suppliers are located in the North of Gaul, namely the pottery workshops of Les Rues-des-Vignes, close to Cambrai (Thuillier 1993). The assemblage of Pompeian Red dishes of the Oudenburg fort site is very interesting given the geographic position of the site in direct contact with *Britannia*. There, productions with red internal slip are attested but generally not identified as cooking plates. The question arises whether those from the Hadham Red slipped wares should not be classified within this category.

At the Oudenburg south-west corner site 128 individuals (sherd count of 212 fragments) were identified within this category. The percentage of these cooking dishes remains very restricted in comparison with all pottery at the site. No less than thirteen different fabrics of which some represent subvariants, could be distinguished.

### 2. Present fabrics

#### 2.1. Fabric 1

Fabric 1 (cf. Table 62) is characterised by a kaolinite rich clay comprising abundant fine quartz, well-sorted. Other distinguishable inclusions consist of fine silex. The fabric has a typical black core with beige margins. The fine, beige-rose coloured surface is occasionally burnished. The high-quality engobe is blood red. This fabric (CAM RDV B) is typical for the first period of production at Les Rues-des-Vignes (group Cambrai) (Deru 2005). The Oudenburg body fragment was found unstratified but is definitely a residual item from the pre-fort settlement given its date from the middle of the 1st to the beginning of the 2nd century.

#### 2.2. Fabric 2

Fabric 2 (cf. Table 62) is divided into three subvariants: 2A, 2B and 2C. They represent an evolution or a variation in colours and inclusions within the same group. Fabric 2A is characterised by a clay of kaolin type, yellow coloured with bright grey-blue core, comprising multiple inclusions of small size. Small long voids and the sand grains are orientated in the direction of the potters' wheel. The fine quartz, sometimes translucent or white, and of heterogeneous form, complete the matrix. The well-fired fabric, almost overfired, comprises red and black inclusions, very visible in the yellow matrix. It concerns iron oxides and flint. The engobe is bright orange. Fabric 2B is characterised by the same colours: a grey-blue core with yellow margins and presenting same long voids, quartz and flint. This fabric distinguishes itself by the presence of red grog large- and small-sized inclusions. Some grog elements form elongated layers which yields a marbled aspect. The orange engobe seems to be finer than the one of 2A. Fabric 2C presents itself as a much finer and whiter variant. This fabric also shows a difference between a bright grey core and yellow margins however more nuanced with less vivid nuances. The very clean matrix contains less voids and a multitude of fine quartz, together with iron oxides and rare flint inclusions. The engobe which is very thin, is decolourised into a bright beige, maybe a result from it being buried in the ground. These three



fabric variants 2A, 2B and 2C belong to the group of Cambrai (Les Rues-des-Vignes). This fabric with bright grey core and yellow fringes has been named RDV-A (CAM RDV A) (cf. Table 62). It represents a second production period that started in the 2nd century and continued into at least the 4th century, given its presence in most of the late Roman contexts at Famars (Willems *et al.* 2017b).

### 2.3. Fabric 3

The intense orange, fine sandy fabric 3 has a slightly brighter surface (cf. Table 62). The irregular matrix, caused by a large number of inclusions heterogeneous in form and size, comprises a multitude of fine quartz and small red and black iron oxides, mixed with large white quartz grains, translucent or grey, of blunt shape. The alternation of white quartz and iron oxides gives the fabric a 'pepper and salt' look. Also some mica is present. The fabric can be identified as the one of the Hadham Red slipped wares of which kilns are located at Little Hadham and Much Hadham in Hertfordshire. The production of these products started from the middle of the 3rd century onwards and had a large distribution from the beginning of the 4th century onwards (Tyers 1996b, 168). The Oudenburg fragments probably belonged to plates close in form to the Pompeian Red ware dishes.

### 2.4. Fabric 4

Fabric 4 is characterised by its beige, orange to pinkish colour (cf. Table 62). The clean break with compact matrix shows an alignment of quartz in the direction of the potters' wheel. Some small voids occur but they do not seem to be characteristic of this fabric. Small-sized, translucent quartz go together with medium-sized, white quartz. Characteristic are red inclusions, probably grog, while iron oxides complete the list of inclusions. The slip is red-orange and of good quality. The origin of this production remains uncertain. The beige variant resembles the fabric of certain regional flagons (cf. Appendix 17). The orange variant is very similar to the fabric of the samian imitations of the Cambrai region.

### 2.5. Fabric 5

Fabric 5 shows the same distribution of small quartz as fabric 4, sometimes almost silt-sized, and medium-sized quartz (cf. Table 62). The latter, subangular and white, is clearly visible. The marbled aspect of this very fine sandy fabric is very distinctive. However, the break remains rather irregular, despite of the fine inclusions. A white and orange fabric have been mixed here. In certain variants, the orange clay represents itself as grog elements. No other inclusions are spotted but voids, sometimes of very long shape, characterise the matrix. The slip is bright orange. The fabric resembles certain variants of the Oxfordshire White wares, showing a fabric with marbled aspect.

### 2.6. Fabric 6

Fabric 6 is sandy, of an intense orange colour with a redder core (cf. Table 62). The dish has a red-orange slip. The irregular matrix and break contain a multitude of heterogeneous sand inclusions, from small- to medium-sized. The medium-sized quartz is often blunt and white. Hardly any other inclusions are detected, except for small-sized voids. Some larger voids indicate the location of quartz or grog inclusions fallen out while making the fresh break. This fabric is related to the fabric of the group of the regional flagons.

### 2.7. Fabric 7

Fabric 7 resembles fabric 5 but its colour is dominated by an orange-brown clay containing threads of white clay (cf. Table 62). It gives the impression that both clays were mixed in opposite proportions compared to fabric 5 where the white dominates. The very clean matrix contains a multitude of very fine quartz. The high percentage of micro-sized quartz results in a granular matrix, emphasised by the presence of rare medium-sized quartz. Some shiny micro quartz may indicate the presence of feldspars. The slip is orange-red. Its origin remains unknown but the link with fabric 5 indicates a possible import from *Britannia*.

### 2.8. Fabric 8

Fabric 8 shows two variants according to the percentage of the quartz inclusions (cf. Table 62). Variant 8A comprises a large number of small-sized quartz of different colours and forms: from white to grey, or translucent, and from blunt to angular-shaped. The fine, bright beige matrix has a dense core. It is probably a kaolin-rich fabric. Other inclusions are small iron oxides, red grog inclusions in certain subvariants, as well as very small black inclusions (iron oxides?) and flint. Voids are rare and of small size. The slip is orange. Variant 8B contains less quartz, accompanied by red and black inclusions, and its colour is more beige brown with a bright beige core. The dense aspect of the matrix of fabrics 8A and 8B and the presence of flint attributes this fabric to the production at Les Rues-des-Vignes.

### 2.9. Fabric 9

Fabric 9 resembles fabric 8 except for its colour which is vivid orange with a brighter beige core (cf. Table 62). Its aspect is less fine. Fabric 9 only contains medium-sized quartz, mainly of translucent and white colour, subangular- or angular-shaped. The dense matrix sometimes contains elongated voids. Grog inclusions occur as well. In this fabric, the flint is lacking. The slip is red. Fabric 9 also refers to the fabrics of the group of Cambrai (Les Rues-des-Vignes). It resembles the fabrics used for the samian imitations dated to the end of the 3rd century (CAM POS).

### 2.10. Fabric 10

Fabric 10 is a white fabric of kaolinite rich clay type containing a large number of medium-sized quartz oriented in the direction of the potters' wheel (cf. Table 62). This gives the fabric an irregular aspect. The fabric furthermore contains a lot of small-sized quartz and some rare small black inclusions or iron oxides. The slip is bright orange. This fabric is close to certain variants of the Oxfordshire White Wares and can probably be associated with this industry.

### 2.11. Fabric 11

Fabric 11 is represented by two variants showing a slight difference in colour (cf. Table 62). Fabric 11A, beige in colour, contains a multitude of micro-sized quartz. Some white, medium-sized quartz is mixed in, as well as white grog elements, visible to the naked eye. The colour of variant 11B is brighter which makes it easier to distinguish the presence of multiple iron oxides. This fabric is clearly related to fabrics 5 and 7 and comparable to the fabric of one of the Oxfordshire White Ware mortaria found at Oudenburg, from the middle of the 3rd century.

### 2.12. Fabric 12

Fabric 12 is without doubt a residual find at the fort site. It is an import of Campania (Italy) (IT CAMP). The find in question is a burnt base. Its description is biased by its subjection to fire. The colour has turned into brown, the surface brown grey (cf. Table 62). The irregular break, caused by the angular-shaped medium-sized inclusions, contains brown micas (biotite), black sand (green augite and volcanic sand), white carbonised inclusions, white, milky-white and translucent quartz and feldspars, and red points (grog?, iron oxides ?). This fabric corresponds with fabric 1 of Peacock (1977). These plates have a rough surface, sometimes burnished, with a thick red slip. The black sand inclusions and the dark red colour of the fabric makes it very recognisable.

### 2.13. Fabric 13

Fabric 13, pink-orange in colour, distinguishes itself from all the other productions by its very fine matrix consisting of a multitude of micro-shaped quartz or feldspars (cf. Table 62). The glossy matrix, caused by the presence of white micas, corresponds with group 4 described for the mortaria of the Bavay-Famars region. The large-sized orange grog inclusions form the most visible characteristic of this fabric. This fabric is similar to that of the Low Lands Ware 1 flagons found at the Oudenburg site and for which an origin in the Bergen-op-Zoom (Lower Scheldt) region (the Netherlands) has been proposed by Degryse and De Clercq (2008).

## 3. Description and analysis

### 3.1. Plates of Les Rues-des-Vignes: fabrics 1, 2, 8 and 9

A single body fragment in fabric 1 with black core was recovered at the fort site as an unstratified find (not illustrated). The production of these dishes with black core at Les Rues-des-Vignes is attested between the middle of the 1st and the middle of the 2nd century (Deru 2005), confirmed by the consumption contexts at Tongeren, site Hondstraat (study by S. Willems, publication forthcoming), or at Famars, site Technopole (Willems *et al.* 2017b). The form of these plates is limited to those with a horizontal everted rim (type Blicquy I (De Laet and Thoen 1969)). The external surface, not slipped, is burnished and the colour beige pink. The red slip of these dishes is of good quality. The Oudenburg fragment can be considered as a residual find from the pre-fort civil settlement.

From the 2nd century the production at Les Rues-des-Vignes evolved into plates with concave shape (type Blicquy V). It is this form that remained popular during the whole mid-Roman period, still persisting until at least the beginning of the 4th century (Thuillier 1993). The dishes mainly became wider with larger diameters. Sometimes an inclination appeared on the external body to mark the sharp lip. A groove and a ridge underlined the transition to the foot. The slip, sometimes crushed or dull, lowered in quality.

The assemblage of the Oudenburg site makes it possible to look into the evolution of the fabrics of Les-Rues-des-Vignes (cf. Plate CLXXVII). Fabrics 2 and 9 are well-represented at all fort levels. Fabric 8 with compact matrix is mainly in use during fort levels 3 and 4 which are dated to the middle and the second half of the 3rd century, while fabric 2 with fine sandy matrix and bright grey core is only present in very low quantities. It is from fort level 4 onwards that fabric 2 becomes popular and takes the lead, from c. AD 260 onwards. This fabric seems to be still well-used in the 4th century. The orange-brown fabric 9, comprising larger quartz, iron oxides and grog, first appears in mixed levels 4+5 and seems to be popular at fort level 5, during the 4th century. The dishes became wider and the inclination of the body is sometimes marked by a groove.

### 3.2. Dish in Hadham Red slipped ware: fabric 3

One base fragment (not ill.), recovered from the post-Roman levels as a residual item, can be identified as from Hadham, thanks to the comparison with mortaria of this region present at the fort site. The productions of Little Hadham and Much Hadham in Hertfordshire are dated mainly after the middle of the 3rd century; however the distribution of their wares started later (Tyers 1996b, 168). Some of the Hadham forms imitate the spectrum of the samian and it is not clear whether these plates are to be classified as cooking vessels or rather as late Roman imitations of samian plates.

### 3.3. Plates of (wider-)regional production: fabrics 4 and 6

The dishes of fabric 6 distinguish themselves by their rim and surface (Plate CLXXVII: 14-15). The general form with concave body is individualised by a rim, marked at the exterior by a ridge which gives it a triangular shape. The surface, fabric and slip are all orange. Neither the external surface nor the internal one where the slip is situated, are burnished or very neat. The foot is detached and shows a marked angle in the same way as the dishes of Les-Rues-des-Vignes. The internal transition between body and base is formed by a groove. With only a few known potteries in the North of Gaul producing this type of cooking dish, this regional production is remarkable. The Oudenburg fragments in these fabrics 4 and 6 appear from fort level 4 onwards, this is from AD 260 onwards, and at fort level 5. A comparison with pottery sherds from the potteries at Arlon in orange fabric have enabled us to exclude this region as possible origin<sup>107</sup>.

### 3.4. Fabric with silt-sized quartz, from Oxfordshire?: fabrics 5 and 7

The two fabrics with silt-sized quartz, fabrics 5 and 7, are distinguished by a difference in surface colour and in break. The marbled aspect of fabric 5 suggests a mixture of two types of clay, a white one and an orange one. The white clay dominates here, while for fabric 7 the difference in colour results from the use of a mainly orange clay. In general, both groups are very similar in fabric and forms.

The plates of group 5 are characterised by their massive form, with thick, widened body and rounded rim (Plate CLXXVIII: 1-4). Sometimes the rim has an internal groove; the massive, flattened base sometimes has a demarcated foot. The colour of the body varies from cream to very vivid orange with a bright orange slip. The slip sometimes runs down almost to the base and gives the impression of sloppy work. The matrix itself is paler than the surface.

The plates of group 7 show an orange-brown body with a neat look and a supplementary burnishing at the top of the rim (Plate CLXXVIII: 5-6). The orange slip is hardly distinguishable from the non-slipped surface. The matrix of the fabric is also almost identical in colour. The general form is characterised by a concave, very widened body with a large diameter (around 30 cm). The foot is marked by a clear angle, like the dishes of Les-Rues-des-Vignes. The base shows fine intentional wheel-turning lines on the bottom. The interior transition between body and base is marked by a shallow groove. The walls of the dishes have a thickness up to 0.8 cm. One example shows a rounded perforation indicating a reparation (Plate CLXXVIII: 6). The refurbishment of this culinary vessels underlines their importance and their rarity on site.

Of both groups 5 and 7 only one individual was found at fort level 4. One dish of group 5 belonged to fort level 5. All other individuals were found in the post-Roman levels.

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<sup>107</sup> With thanks to F. Hanut and D. Henrotay (both *Service Public de Wallonie, Direction de l'Archéologie*) who were so kind to provide us with pottery sherds from the furnaces producing plates with internal red slip.

### 3.5. Group with white fabric, related to the 'Oxfordshire White Wares': fabrics 10 and 11

Fabrics 10 and 11 are characterised by a white clay and are very similar to the fabrics identified as Oxfordshire White Wares for the category of the mortaria present at the site. Fabric 10 comprises medium-sized quartz while fabric 11 is characterised by silt-sized quartz. The plates have a very wide body and a simple, rounded rim, less inclined than at the group of Les Rues-des-Vignes (Plate CLXXVIII: 7-10). The foot is marked but rounded. The transition between body and base is sometimes emphasised by a deep groove. Despite some fragments at fort levels 2, 3 and 4 (level 2: one item; level 3: two items; level 4: two items; level 4/5: one item), the plates mainly occur in the last fort level. No less than half of this assemblage was recovered from fort level 5 or the post-Roman levels. Tyers (1996b, 129) mentions an expansion of the exports of Oxfordshire White Wares mortaria from the middle of the 3rd century onwards and mainly during the 4th century which is not contradictory in accordance with the find contexts at the Oudenburg fort. However, such plates seem to be unknown from British consumption sites, according to British colleagues (M. Lyne, J. Timby, pers. comm.). Therefore, we must be careful in attributing this group to a given region.

### 3.6. Italian plate: a residual find from the first phase of the civil settlement: fabric 12

A single base (not ill.) seems to have been imported from the Campanian region based on the presence of volcanic sand and biotites in its fabric (cf. Table 62). The first examples of Roman dishes with internal red slip, imported in the beginning of the 1st century AD, actually originate from this part of Italy although they are characterised by a rough and irregular surface. Hence, it seems likely that the Oudenburg individual recovered from fort level 4 is a dug-up item from the earliest phase of the settlement.

### 3.7. Plate with micaceous fabric: fabric 13

One dish rim, recovered from the construction pit of the large basin OS 4923 from fort level 5, stands out by its fine micaceous fabric (Plate CLXXVIII: 14). The surface is pink and has an orange internal slip. The form distinguishes itself by the very incurved and rounded body; the rim thickens slightly into a ribbon-shaped one. The similarities in fabric to the Low Lands Ware 1 flagons suggest that this plate is also a regional product of LLWI potteries who were specialised in tableware (dishes, flagons, beakers), fine ware (fine reduced) as well as jars and containers from the Holwerda (1923) 139-142 type series (Degryse and De Clercq 2008).




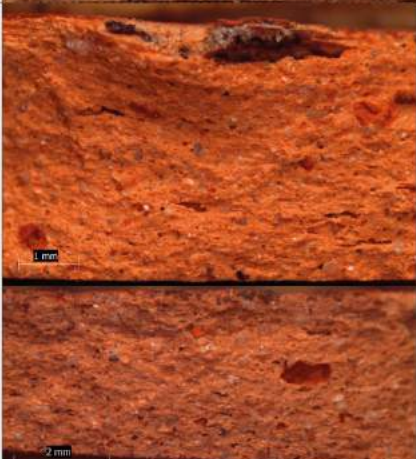
## 4. Conclusions from the Pompeian Red ware assemblage

Although several fabrics can be discerned amongst the attested Pompeian red ware plates of the south-west corner site, the plates with red internal slip mostly originate from the South-Nervian region where the potteries at Les Rues-des-Vignes were specialised in this type of cooking plate amongst other vessels. Neither the Rhineland workshops nor the potteries in *Britannia* managed to provide a competitive production for this category; the potteries of Les Rues-des-Vignes continued to dominate the supply of these dishes to the Oudenburg fort. Although one cannot speak of a long-distance trade as was the case for the samian, the fine wares, the coarse mortaria and the amphorae, the products from Les Rues-des-Vignes seem to have dominated the North-Gaulish market. Local imitations did exist at several places, like for example at Tongeren, the capital of the *Tungri* (on-going research), in the wider region as can be assumed based on fabrics 4, 6 and 13, and also at Arlon of which the production remained focussed on the Belgian Lorraine and Ardenne region (Hanut 2009) and was not distributed to the coastal region.

The Nervian products were only competed in small numbers by probable British imports with white or marbled fabric which are most likely related to the Oxfordshire White Wares or to the variant of



the Red slipped Wares; however, Young (1977) does not mention a production of culinary plates with red internal slip. The potteries for these plates remain unknown for the moment and there is no specific information about the production of this category in *Britannia*; in his listing of the Pompeian Red wares in *Britannia* Peacock (1977) does not mention any local productions. A British production imitated the forms from possibly Oxfordshire but using a vivid orange clay which is comparable to the one used for the production of flagons and mortaria (fabrics 5 and 7) and even mica-dusted wares. As for the mortaria these fabric groups are primarily, based on the related form and surface, very similar to the ones from *Britannia*, but the fabric comparison with regional flagons rather indicates a continental origin. The act of imitating remains very interesting, since the original products easily provided the market. The results of this study in depth based on fabric analysis has revealed several so far unrecognised Pompeian Red ware fabrics which deserve closer attention in the future.

fabric	identification	MNI	sherd count
fabric 1	CAM RDV B 	0	1
fabric 2	CAM RDV A 	37	48
fabric 3	Hadham 	1	1
fabric 4	uncertain origin; orange fabric with red grog (?) inclusions 	6	8



fabric	identification	MNI	sherd count
fabric 5	OXF? marbled fabric	8	8
fabric 6	NOG; orange fabric with redder core, very sandy	8	8
fabric 7	Romano-British?; orange fabric with silt-sized quartz, slightly marbled	2	9
fabric 8	CAM; white buff dense fabric with greasy aspect	31	53
fabric 9	CAM POS brown sandy fabric, greasy dense aspect	7	9

fabric	identification	MNI	sherd count
fabric 10	OXF WW?; white fabric with large quartz inclusions	12	22
fabric 11	OXF WW white fabric	4	5
fabric 12	IT CAMP	1	1
fabric 13	soft fabric with mica and red grog inclusions	1	1

Table 62: The attested Pompeian Red ware fabrics at the south-west corner site. Description and quantification (Photos by S. Willems).

## APPENDIX 17 - Flagon wares at the south-west corner site (By S. Vanhoutte and S. Willems)

### 1. Imported versus regional flagons

Although they are an essential 'Roman' product, flagons appear to be of much lesser importance than the handmade and wheel-turned grey wares. This pottery category shows the greatest difference between the different quantification methods: when the Roman level is considered in total, the flagons represent 10.5% in sherd count and only 2.9% in MNI. This is mainly due to the large fragmentation degree and the on average small rim diameter of these vessels. However, the percentages both show a clear trend. In the two first levels the flagons represent a larger percentage of the pottery assemblage with, depending on the quantification method (sherd count versus MNI), 26.5% or 6.1% at fort level 1 and 18.5% or 4.4% at fort level 2. From fort level 3, around the middle of the 3rd century, these percentages drop considerably: an average around 10% in sherd count and 2.3 to 2.9% in MNI count for fort level 3 to 5 show a decrease indicating that the flagon form became less popular from the middle of the 3rd century onwards, perhaps due to changes in eating or drinking habits. For fort level 5, as is clear from the key context assemblages, the proportion of flagons most likely represents an over-representation due to a high number of residual, dug-up individuals (however, all pottery categories are subject to a high degree of residuality at this point).

Within the category of the flagons, a classification was made using 'flagon tableware' and 'flagon storage ware' to avoid an attempt to define the division between 'flagons' and 'jar-amphorae' based on the number of handles since the represented tableware flagons could apparently be both one or two-handled. The division between tableware and storage ware flagons was made based on the size of the vessel, the thickness of the wall, the coarseness of the fabric and the finish of the exterior surface (see also Vanhoutte *et al.* 2009c).

Apart from a very small share of small-sized Cologne/Rhineland tableware flagons, characterised by a whitish fabric, and some Rhône Valley tableware flagons, together with a small portion of tableware flagons originating from southern territories (mainly from Bavay-Famars) (see Section 2), the flagon group is dominated by the regional Low Lands Ware 1 products, so-called 'Scheldt-Valley' flagons and jar-amphorae<sup>108</sup> and regional flagons presumably of Menapian origin.

The Low Lands Ware 1 flagons have been supplied in large quantities to the Roman fort, as can be deduced from key context assemblages like the large waste-pit OS 4980 and well OS 22926 (see Addendum 10/11) where this flagon group was examined in detail. The tableware flagons of this group are frequently characterised by burnished zonal areas or a complete burnishing of the body. Of several flagons the interior of the neck was covered by a black coating. Analysis of such flagons, within a larger research project by W. De Clercq, has evidenced that it concerns birch-tar (pers. comm. W. De Clercq). This black coating points out that these flagons originally had wooden caps; such wooden caps, in combination with black coating, were still preserved on several flagons found at *Forum Hadriani* (Voorburg-Arentsburg) (Van Kerckhove 2014, 470). They will have transported liquids, which indicates that at least part of the flagons were also imported for their content. According to their occurrence in the key context assemblages, this was already the case from period 1, the late 2nd century, onwards.

The flagons (and (jar-) amphorae) with a quartz-rich 'Scheldt-Valley' fabric and characterised by a white slip were described by van der Werff *et al.* (1997). For this particular group they considered

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<sup>108</sup> This pottery group could not yet be studied systematically under the binocular microscope which is essential to distinguish with certainty these three flagon productions. However, a general image could be deduced from characteristics like the burnishing (typical for the LLW1 flagons) and the white slip, although not always preserved. Fabric analysis using binocular microscope of a sample of the white-slipped flagons however revealed that both the Scheldt-Valley as the North-Menapian flagons were covered in that way and that a large share of flagons assumed to be of the Scheldt-Valley production appear to be of presumed Menapian origin.

a rim diameter of 12 cm as criteria to distinguish the amphorae (with more than 12 cm rim diameter) from the flagons; the assemblages studied by them however hardly comprised 'flagons' (van der Werff *et al.* 1997, 6). According to their study, the distribution area of these Scheldt-Valley products covered the north-west of *Gallia Belgica* and *Germania Inferior* with Nijmegen, Tienen and Tongeren forming the eastern border. The core was situated in East-Flanders (van der Werff *et al.* 1997, 4). These flagons and amphorae are also well-present at the Aardenburg fort (Dhaeze 2013, 219). Originally it has been thought that the production originated from the Waasland region, based on the close resemblances with the 'Rupel' clay (van der Werff *et al.* 1997, 5). However, macroscopical comparison, using binocular-magnification, of Scheldt-Valley flagons from our region with flagons from Dourges (Pas-de-Calais, North of France) has evidenced similar fabrics and allows the assumption that the Scheldt-Valley flagons and amphorae, or at least part of them, were most likely produced there (Vanhoutte *et al.* 2009c, 114). The production at Dourges has been confirmed by recent archaeometric analysis on Scheldt-Valley amphorae found at *Colonia Ulpia Traiana* (Xanten) (Schmitz 2014). At Dourges, up to eight pottery kilns have been found, producing flagons and amphorae amongst others, with date ranges from the 1st to the 4th centuries (Thuillier 2004; Leroy *et al.* 2012)<sup>109</sup>.

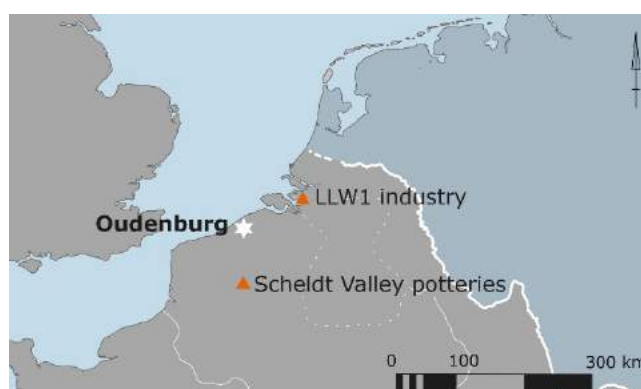


Fig 77: General localisation of the production regions of the wider-regional flagons attested at the Oudenburg fort.

A yet undefinable share of flagons – they can only be distinguished from the LLW1 flagons and certainly from the Scheldt-Valley flagons using binocular-magnification; more detailed study is therefore needed to reach clear conclusions – shows a fabric which can be recognised as the oxidised variant of the (North?-)Menapian group (cf. Fig. 78: NOG FL fabrics). Most of these flagons were covered with a white slip. Some flawed flagon fragments represent second-class products and their presence can be an indication that the potteries were not far-off. Further study is needed to determine whether the North-Menapian potteries, known for their handmade and reduced wheel-turned wares, were for sure also producing oxidised pottery.

## 2. Imported flagons from southern territories

From the total flagon assemblage from the Roman level<sup>110</sup>, only 81 fragments, representing at least fourteen individuals (defined based on the present rims), can be attributed to productions located in current France<sup>111</sup>. The fourteen individuals (based on rim/base/handle fragments), representing 65 fragments, originate from the region Bavay-Famars of which twelve have a saponaceous fabric and two have a sandy calcareous fabric (for the latter: cf. Fig. 78: BAFA FL). The dominance of the saponaceous variants at Oudenburg (cf. Fig. 78: SAV FL, three variants) is not surprising

<sup>109</sup> Several graves of graveyard A contained a flagon (see Mertens and Van Impe 1971, Pl. LXXII-LXXIII). It is our aim to examine these closely in the future to obtain more information on their fabrics, in comparison with the flagons found on the fort precinct.

<sup>110</sup> Only the flagons from the Roman level are considered here. More of these imports were found as residual or dug-up fragments in the post-Roman and mixed levels but were not studied in depth.

<sup>111</sup> Similar fabrics are represented in the fine oxidised group. Vessel fragments which cannot be determined with certainty whether they belonged to flagons or other tablewares, are not considered here.



considering the fort occupations in the 3rd and 4th centuries. In that period, the sandy variants drop back in favour of the saponaceous productions, using the same clay but with a treatment of filtering or washing to achieve a dense and fine aspect. The individuals defined for the Roman level are distributed as follows: one MNI for level 2, two MNI for level 3, four MNI for level 4 and eleven MNI for level 5. Only a few flagon forms are recognised since most of the flagon sherds represent body fragments, handles and base fragments. The identifiable flagons belong to the late types with ribbon-shaped rim, type Blicquy XIII.2/Reims 223 (for Blicquy: De Laet *et al.* 1972; for Reims: Deru 2014) (Plate CLXXIX, A: 1-2). This type has been found at Famars from 'phase 5' onwards, dated after AD 260 (Willems *et al.* 2017a). At Reims, it has been generally dated in the 3rd century (Deru 2014), while at Blicquy the authors have situated the type in the 2nd century (De Laet *et al.* 1972). The find contexts at Oudenburg, situated at fort level 4 or later, seem to support the dating suggested at Famars. One other individual (Plate CLXXIX, A: 3) has a simple, out-curved rim, close to type Vanvinckenroye (1991) 440.

Fifteen flagon sherds can be attributed to the potteries of Noyon (cf. Fig. 78: NOY FL); eight with absolute certainty and seven probably. Since it only concerns body fragments, no individual can be attributed to this group. The Noyon productions knew a mainly western distribution, via Boulogne to *Britannia*, but a small share seems to have been exported to the north via the Scheldt river to the *civitas Menapiorum*, as examples at Menen (B) testify to as well (Dhaeze *et al.* 2016). The Noyon potteries were popular in the 1st and 2nd centuries. Since the eight certain Noyon fragments were found at fort levels 4 and 5, they most definitely represent residual items, originally belonging to fort level 1 or the earlier occupation on the site.

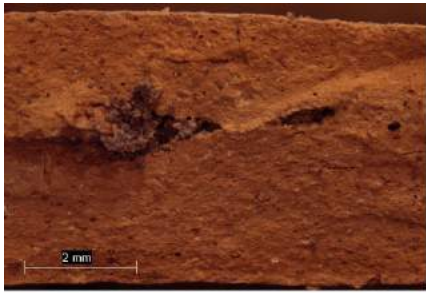
Another four flagon sherds (no rim fragments) have a micaceous fabric referring to the Mediterranean production in the Narbonne region, while another three fragments show an unidentified micaceous fabric.

### 3. A small storage vessel called 'honey pot'

One individual (two fragments) clearly belongs to the group of storage vessels of the type called 'honey pot', characterised by a shallow eaves trough (Plate CLXXIX, A: 4).

The burnished surface makes it difficult to distinguish the body fragments of honey pots from other tableware vessels. This is also a problem for certain flagons with burnished surfaces. Hence, the identification of burnished oxidised bodies remains difficult and the counts are therefore certainly biased by this. The classification '*céramique mode de cuisson A*', used in the North of France, a classification not related to function, is a solution but the historically grown classification in Flanders into fine oxidised vessels and flagon wares is maintained for the site, enabling comparisons with other sites in Flanders.

The form of the Oudenburg honey pot with a rim including a shallow eaves trough and a truncated neck is typical for storage vessels with two small handles. Its white fabric, and hence its origin, remains undetermined. The dating of this vessel, recovered from fort level 3, is therefore difficult. The honey pots occur from the 1st century onwards until the beginning of the 3rd century AD, with a type spectrum that hardly changed.



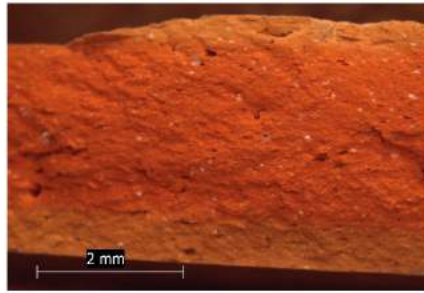
BAFA FL



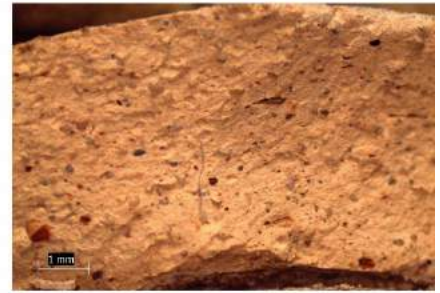
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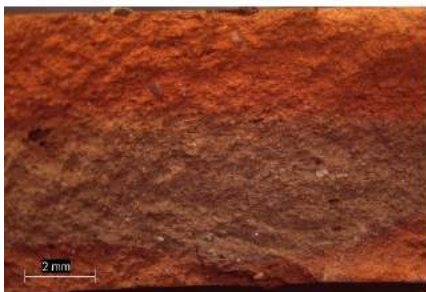
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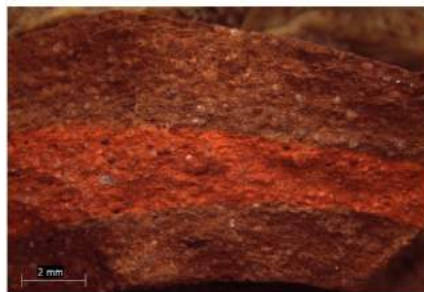
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NOY FL



NOG FL



NOG FL



NOG FL

Fig 78: Attested flagon ware fabrics at the south-west corner site: productions from the Bavay-Famars region (BAFA FL, SAV FL 1, SAV FL 2), from Noyon (NOY FL) and presumed local/regional productions, of the North(?) -Menapian region (NOG FL) (Photos by S. Willems; composition by S. Mazereel).



## APPENDIX 18 - Fine oxidised wares at the south-west corner site (By S. Willems)

Within the total pottery assemblage of the site, only 83 fragments, representing sixteen individuals, were classified as belonging to the group of the fine oxidised tableware vessels. For some individuals, only partly preserved, their attribution to this group is not absolutely certain. When it concerns only fragments, it is difficult to differentiate between flagon and tableware vessel as certain flagons also have burnished zones on the exterior.

Five individuals from the fine oxidised group originate from the Bavay-Famars region and have a soapy fabric (cf. Fig. 79: SAV FO). Two of them have an identifiable form: a cult vessel with applied face (Plate CLXXIX, B: 1) and a bowl with pending collar (Plate CLXXIX, B: 2).

The cult vessel, recovered as a body fragment from the primary fillings of the large waste-pit OS 4980 of fort level 4 (Vanhouette *et al.* 2009c, 108, 109: Fig. 12), belongs to the planetary vases or 'vases à visage' (Flahaut *et al.* 2014) and shows the face of a beardless god with curled hair, probably Mercurius (Plate CLXXIX, B: 1). The production of these vessels has been attested at Famars (Willems and Borgers 2015), through the find of a face mould and through the excavation of a furnace producing soapy wares. At Famars the production of these vessels is attested at the end of the 3rd and the beginning of the 4th century. The production of this type of cult vessels known as 'vase à visage' probably already started in the 1st century as the examples of Bavay testify to (Flahaut *et al.* 2014). However, the production at Famars is the only one proven so far.

Collared bowls in soapy fabric, such as the Oudenburg example (Plate CLXXIX, B: 2), are popular by the end of the 2nd and the beginning of the 3rd century. At Famars they were found together with the first productions of the soapy mortaria of the Pont-sur-Sambre type, with low internal lip (Willems *et al.* 2017a). The Oudenburg collar fragment was found in the fillings of the well OS 22926 of fort level 4 and can be seen as a residual item, possibly originally belonging to fort level 1.

Two foot bases in soapy fabric, also attributed to the Bavay-Famars productions, are very developed, with several external ribs and an annular foot elevated underneath (Plate CLXXIX, B: 3 and 4). This kind of base is most likely related to the cult vessels. Interesting to note is that one (Plate CLXXIX, B: 3) was recovered from fort level 4, the same level as the cult vessel fragment with applied face; the other was found in the final filling-in of the double well OS 2562, most likely a dug-up find (Plate CLXXIX, B: 4). Other vessel sherds possibly belong to beakers, but no type can be identified. They occur from fort level 2 onwards (level 2: one item; level 3: five items; level 4: eight items; level 5: ten items; post-Roman levels: ten items).

A second area that succeeded in supplying fine oxidised wares to the Oudenburg fort is the Cambrai region. A bowl with bayonet-shaped rim, attributed to fort level 4, originated from the potteries of Les Rues-des-Vignes (Plate CLXXIX, B: 5). This production using white, very fine fabric and with highly-burnished surfaces, has only been distributed in small quantities to sites further than a few 100 kilometres away from the workshops. These rare exported examples were found in prosperous contexts, like the neighbourhood of the temple of Famars-La Rhonelle (ongoing study), or at Avenches, Switzerland (Bosse-Buchanan 2010). For this type of bowl with bayonet-shaped rim no type number is known (cf. Deru 2005), but Deru concludes that a production and distribution of this type should be set in the first quarter of the 2nd century. The Oudenburg fragment, found in the earthen rampart level which can presumably be dated to fort period 4, is therefore most likely a residual item. A second individual from the Cambrai region potteries can be identified as a beaker with short concave neck and slim foot (not preserved), a typical form for the period after AD 260 (Plate CLXXIX, B: 6). The rim fragment, recovered from a mixed level 4+5 but presumably belonging to fort level 4, seem to be burnt since it shows a dark grey fabric with a creamish slip. This slip may have been originally black to become white after exposure to fire (Fig. 79: CAM FO).

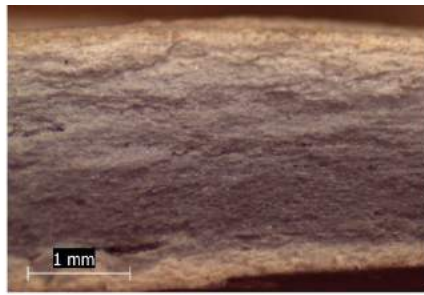
Other identified fine oxidised fragments all have fabrics related to the local/regional North-Menapian production. Their fabric is comparable to the ones identified for the flagons and the mortaria (cf. Fig. 79: NOG FO). The forms are very fragmented. Worth mentioning are the body fragments of a small beaker with knife-trimming decoration recovered from fort level 4 (Plate CLXXIX, B: 7), a rim from a beaker probably of the type with slim foot, recovered from the large water-basin OS 4923 of fort level 5 and most likely residual (8), an everted lip, slightly tapered (9) and a dish with a triangular-shaped lip, and burnished interior and exterior surface (10), the latter two found in post-Roman levels. From the latter two it remains unclear whether they are residual items from the fort or whether they were brought in with the dark earth from outside the fort.

Some fragments remain of unidentified origin. A bowl with incurved wall, an unstratified find, has a micaceous fabric of unknown origin (11) (cf. Fig. 79: UNDET FO). An attribution to the Low Lands Ware 1 industry is possibly. It is uncertain whether the end represents a pending collar or the lip of the vessel. Here the fragment is presented as a bowl. One fine oxidised fragment is produced in a whitish fabric close to the ones of the Romano-British Lower Nene Valley Wares and was found in the final layers of fort level 5 (Fig. 79: LNV? FO). Two fragments, both recovered from fort level 3, resemble the white fabrics of the Desvres region. Four fragments, found at levels 4 and 5, are made of a very whitish fabric close to the Rhineland productions but this determination could not be confirmed by an identifiable form. The remains of a knife-trimming decoration possibly attribute them to the beaker group. The burnished surface excludes the possibility that they belong to the Cologne colour-coated wares of which the slip was abraded. One of the local/regional fragments with knife-trimming decoration can certainly be related to a beaker, supporting the identification of the former fragment as part of a drinking vessel.

The lower part of a bottle, beaker or jar with slim foot has an elevated interior base, decorated with some lines in order to emphasise the transition of wall to base (12). The whitish sandy fabric is very similar to the Oxfordshire production wares but its attribution is not certain (Fig. 79: OXF WW? FO). A second vessel fragment in the same whitish fabric is very interesting for the interpretation of the military occupation of the fort. It is a fragment of a breast-pump found in the construction pit of the large water-basin of fort level 5 (13). The upper part of the fragment, conical-shaped, ends in a small bottleneck or pipe. The other side which is not preserved, has a larger opening. Commonly this object has been interpreted as a feeding bottle but the tightness of the pipe seems to be unsuited for the nutrition of an infant. F. Loidant and N. Rouquet who studied the typology and distribution of this type of object (Rouquet and Loidant 2000), have investigated this by experiment and demonstrated the facility of the use as breast-pump (Rouquet and Loidant 2003). The find of a breast-pump in a military context is most interesting, since it can point to female presence at the fort site. However, the known practice of the consumption of human milk in medicine, namely in ophthalmic treatments, cannot be denied as possibility, although it seems unlikely to us that the milk would have been brought into the fort inside the breast-pump itself and not poured into another vessel.



SAV FO



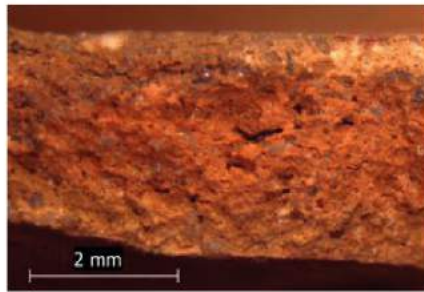
CAM FO



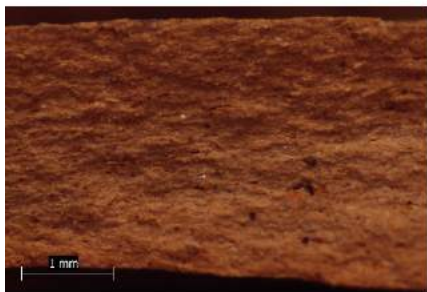
UNDET FO (micaceous)



NOG FO



NOG FO



OXF WW? FO



LNV? FO

Fig 79: Attested fine oxidised ware fabrics at the south-west corner site: a production from Bavay-Famars (SAV FO), from the Cambresis region (CAM FO), from Oxfordshire(?) (OXF WW? FO), from Lower Nene Valley(?) (LNV? FO), local/regional productions from the the North(?) -Menapian region (NOG FO) and an undetermined, micaceous fabric (UNDET FO) (Photos by S. Willems; composition by S. Mazereel).

## APPENDIX 19 - Mica-dusted wares at the south-west corner site (By S. Willems)

The mica-dusted wares only represent a very small assemblage with 129 fragments representing seventeen individuals in total for the Roman pottery assemblage of the site. This small assemblage of tablewares imitating bronze vessels is very homogeneous. Only three individuals and a body fragment appear to be imported from outside the region. The others can be identified as local/regional productions, based on the similarities of their fabrics with other (North?-)Menapian productions as known in the reduced and flagon ware groups.

The form spectrum of the mica-dusted individuals is very limited. Most of them can be identified as flagons, of which some can clearly be recognised as oenochoes. No less than twelve of the seventeen individuals belong to the flagon form (see for example the foot fragment (Plate CLXXX: 1) from mixed level 2+3). The flagon/oenochoe fragments were recovered from fort levels 2, 3, 4 and 5.

The oenochoes, or flagons with scupper and handle imitating bronze examples, had a small lid attached. One of the Oudenburg individuals, found in a context of fort level 2, is, although fragmented, rather well preserved and shows almost the complete vessel profile (Plate CLXXX: 2 (only the upper half of the vessel illustrated)). The rim has an eaves trough with clay expansions simulating a scupper lip and the start of the broken-off attachment button of the lid. Hence, the rim is not shamrock-shaped as is often the case both in the ceramic and the bronze versions. The collar is grooved, the handle triploid and the foot annular, close to the bases of certain flagons. The form of the Oudenburg oenochoe therefore combines type Vanvinckenroye 299 (eaves trough lip) and 301 (pronounced collar/shoulder), types dating to the second quarter of the 2nd century AD based on find contexts at Tongeren (Vanvinckenroye 1991). This date is however not compatible with the phasing at Oudenburg where the find context puts it a century later. As this flagon is so complete, it cannot be a residual item and its attribution to fort period 2 demonstrates that this type continued to be in use well into the 3rd century. The couple patera-flagon/oenochoe, used during rituals of ablutions (purification by pouring liquids), is often found in funerary contexts. It is possible that the Oudenburg oenochoes are to be situated in a ritual context, perhaps related to the ritual of the *armilustrium*, the cleaning of the weapons after battle, or another *lustratio in* which the body or objects were washed ritually.

A mica-dusted flagon handle, recovered from the fire layer of the end of fort level 4, bears a small pike (Plate CLXXX: 3). Its fabric is identical to mortaria fabric 5 and most likely points to a North-Gaulish origin. The spike may refer to the characteristic fin on Gauloise 13 amphorae. Another mica-dusted handle, found in the large water-basin of fort level 5, also shows a small pike (Plate CLXXX: 4). Its sandy white fabric seems to be related to the Oxfordshire wares (Fig. 80: OXF WW? MD); however no such type is known in the Oxfordshire wares typology by Young (1977).

The mica-dusted assemblage also includes three bowls. One of them, found at fort level 5, bears the start of a small handle, indicating that this individual was a patera (Plate CLXXX: 5). Another bowl with small everted rim and found at the same level, can also be attributed to the patera group (Plate CLXXX: 6). Both show a fabric likely from North(?)-Menapian origin (cf. Fig. 80: NOG MD). The third bowl, recovered from the dark earth level (therefore not excluding an origin outside the fort), has a collar (Plate CLXXX: 7). Its beige fabric with fine silt-sized quartz inclusions remains unidentified.

Only one pot with concave collar and everted rim bears traces of mica dust (Plate CLXXX: 8). This individual has been found in a level of the earthen rampart and can be assigned to fort level 1. Its fragmentary state allows no further identification than its general form. Its fabric resembles mortaria fabric 7, most likely of North-Gaulish origin.

An irregular rim, flattened at one side, forms an exception within this assemblage (Plate CLXXX: 9). The flattening recalls a bottle type called 'field flask', like type Vanvinckenroye 620, dated to

the first half of the 3rd century according to find contexts at Tongeren (Vanvinckenroye 1991). The Oudenburg individual was found in fort level 4.

Most of the mica-dusted ware fragments at the Oudenburg site appear to be of regional origin. They show an orange to red fabric with regular fracture and containing medium-sized quartz, with some larger ones, all opaque or milky-white (Fig. 80: NOG MD). The fabric resembles the one of the local/regional flagons with burnished surface. As mentioned above, two fragments have a fabric identical to the fabrics identified in the mortaria group (fabric 5 and 7), red coloured, and most likely of North-Gaulish (North(?)-Menapian?) origin. Only one saponaceous body fragment with burnished surface is possibly imported from the Bavay-Famars region.

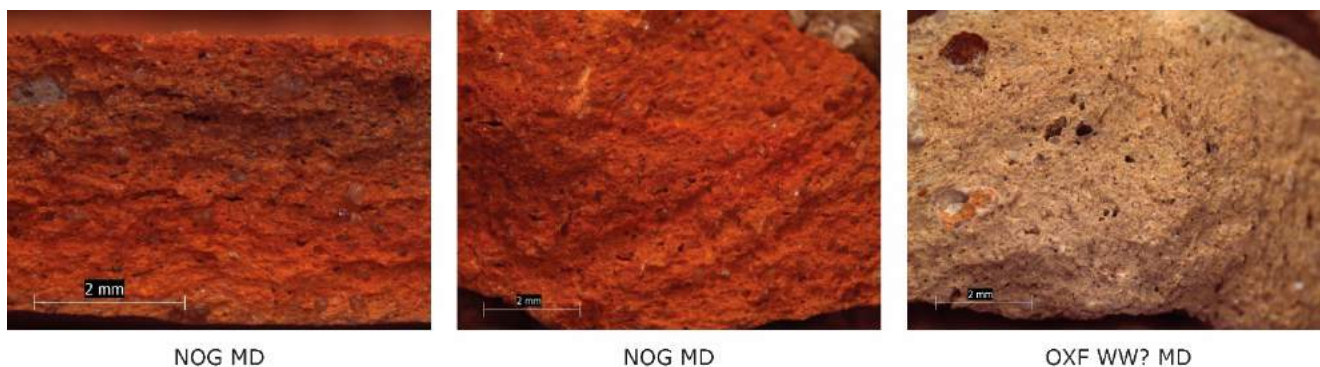


Fig 80: Some of the attested mica-dusted ware fabrics at the south-west corner site: North(?)-Menapian (?) productions (NOG MD) and a presumed Oxfordshire white ware production (OXF WW? MD) (Photos by S. Willems; composition by S. Mazereel).



## APPENDIX 20 - (Late) *terra nigra* at the south-west corner site (By S. Vanhoutte and S. Willems)

### 1. Introduction

The 'real' *terra nigra* of the High Empire is not recognised at the site, which is not surprising given the mainly late fort occupation. Most (mid-Roman) grey, fine-walled vessels with – sometimes very high-quality – burnished surface found at the site can be identified as the fine reduced variant of the North-Menapian production and are classified as such. This fine reduced North-Menapian component comprises several subfabrics, with varying hardness and quality of surface finishing. No *terra nigra* import from the South could be detected. Nevertheless, several pottery fragments at the Oudenburg site can be classified as so-called 'late' *terra nigra* wares. In the study by Brulet *et al.* 2012 of the late Roman pottery at the site of the cathedral Notre-Dame at Tournai, a division was made between '*terra nigra* tardive', 'céramique fine sombre', 'céramique fine sombre grise granuleuse' and 'céramique commune sombre'. Such a classification appeared to be hardly possible during the inventory of the Oudenburg pottery assemblage without a study in depth, because of the close resemblances with some of the North-Menapian fine reduced productions. Moreover, in literature there appears to be no consensus to what can be classified as late *terra nigra* (cf. also Van Thienen *et al.* 2017, 87). For example, the double-lobed beaker type Brulet B4.2 has a late *terra nigra* variant and a 'fine sombre' variant at the Tournai site (Brulet *et al.* 2012, 152-155) but are classified in many other studies in the general category of the 'reduced wares'. Another example is the Chenet 342 foot-vessel which is often classified as '*terra nigra*-like' and for which recently the term 'late Roman *terra nigra*' has been suggested as a general name, however comprising several fabric groups. Geochemical and petrographic analyses have evidenced at least two distinct major production areas in Westphalia and the Low Countries next to several smaller production workshops for the Chenet 342 foot-vessel (Van Thienen *et al.* 2017).

Since the totality of the reduced wares of the Oudenburg site – as is also the case for the handmade wares – could not be studied in depth in its totality for this thesis, it was decided to count the coarse reduced, fine reduced and late *terra nigra* fragments in one group. They are evidently identified within the key context studies (cf. Addendum 10/11). A study in depth of the complete assemblage of reduced wares of the Oudenburg site is one of the research tracks to aim for in the future.

### 2. Two large beakers with an Oudenburg-Aardenburg-Britannia link

Thirty-five fragments, representing only one individual by rim fragment and two individuals by fabric, can be set aside as similar to *terra nigra* products. These fragments have a fabric that resembles the ones from the local/regional fine reduced wares. Several fragments show grooves which may refer to the decoration of bottles but the absence of rims does not allow a more precise identification. The only recognisable form was found fragmented over several contexts of level 2 and 3 but could be easily sorted out by its decoration incised before firing in the shape of overlapping lozenges of type 'Renault'. Based on the fabric, two individuals are represented, both decorated in the same way. The form has no real comparison in the common *terra nigra* typologies, like the one from X. Deru (1996) or the one from T. Ben Redjeb (1985) for Picardy. The form of the Oudenburg individual of which a large part of the profile was preserved (Fig. 81), comes closest to the biconical jars or beakers with long, concave neck, except for the body which shows ridges instead of a bend. The decorative pattern is situated on the flattened part of the body, surrounded by projections to the top and the bottom. The (missing) foot was probably rather high and developed.





Fig 81: The so-called late terra nigra beaker from fort level 2 at the south-west corner site of the Oudenburg for which a close parallel has been found at Aardenburg.

While vessels with incised decoration are rather unknown on the Continent, they do occur in *Britannia*: both the London-Essex stamped wares and the 'London ware' style are characterised by their use of this kind of decoration next to stamped and rouletted decoration (Tyers 1996b, 169-171). Especially the latter style, described by Tyers as '*a hard, smooth-textured micaceous fabric, with a slightly laminar fracture, dark grey-brown core with dark-grey or black slip on finely burnished surfaces*' appears to be very similar to the Oudenburg vessel. However, the London ware longitudinal incisions are accompanied with semi-circles. According to the horizons of X. Deru (1996) as well as according to the chronology by P. Tyers (1996b), the vessels with incised decoration occur mainly from the last third of the 1st century and during the whole 2nd century.

One seemingly identical vessel, having the same form and decoration, was found in the civil settlement at Aardenburg, at the site Hof Van Buize II located at c. 400 meters south-east of the presumed eastern gate of the Roman fort (de Visser 2001, 154 and Fig. 9.86). Only nine body fragments were found, recovered from a hearth structure (context 5) which was part of a workshop area. The function of the large number of hearths remains unclear but ceramic production is excluded as a possibility; interpretations given by de Visser are the production of a local fish sauce or the roasting of shells for the production of lime (de Visser 2001, 213-216). The accompanying samian ware in the find context dates the Aardenburg vessel in the first quarter of the 3rd century, which is largely in line with the phasing of the Oudenburg vessel(s) in fort level 2 and 3.

The fabric of the Oudenburg example which can be assigned to fort level 2, is very sandy, within a rather heterogeneous matrix with voids (Fig. 82: fabric to the left). The milky-white and opaque quartz is characteristic, as is also the presence of red grog. The milky-white quartz appears to refer to the local/regional products of the North-Menapian coarse reduced wares and flagons. Its 'sandwich' colour represents different stages in the firing, from reduced over oxidised to reduced. The fabric which can be assigned to fort level 3, is very close to the North-Menapian sandy productions, but the colour varies from grey to beige and the red grog inclusions of the first fabric are lacking (Fig. 82: fabric to the right).

With the two isolated finds at Oudenburg and the single vessel at Aardenburg, both dated to the first half of the 3rd century, one can assume that they represent local/regional imitations of perhaps the British London Ware style. Maybe these vessels were made by soldiers/potters who got influenced by seeing these London ware pots through contacts or who were first stationed in *Britannia* and later relocated to the Oudenburg or Aardenburg fort.

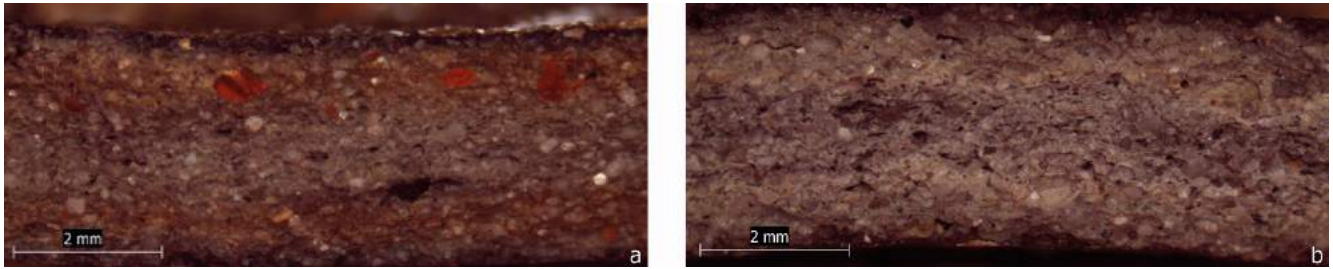


Fig 82: To the left: fabric of the fort level 2 beaker found at the south-west corner site and illustrated as Fig. 81. To the right: fabric of the fort level 3 beaker found at the south-west corner site (Photos by S. Willems).

### 3. Late terra nigra in the 4th – early 5th century

A small amount of reduced ware fragments from fort level 5 and later levels can be recognised as late *terra nigra*. Such late *terra nigra* wares are characterised by their production technique in obtaining a metallic appearance, more than by a universal form repertoire, and are mainly 4th-century in date (Brulet *et al.* 2012, 151). Late *terra nigra* forms classified by Brulet *et al.* 2012 are beakers, bowls and cups.

Many late *terra nigra* beakers were found as grave good in the graves of Oudenburg graveyard A (Mertens and Van Impe 1971). Beakers with pear shaped body, type Brulet B2.6/7, were present in graves 23 (no. 4), 112 (no. 5) and 178 (nos. 1 and 2), beakers with beaded neck, type Brulet B3.1, in graves 3 (no. 3), 84 (no. 6), 115 (no.1) and 199 (no. 3<sup>112</sup>). The most popular reduced beaker at graveyard A was the double-lobed beaker, type Brulet B4.2. Also at other late Roman graveyards, such as Tongeren, Bavay and Tournai (rue Perdue), this type is well-spread (Brulet *et al.* 2012, 152). At the south-west corner site, this late Roman double-lobed beaker type is mainly present in the infill of the inner well of structure OS 2562 of fort level 5 (see Vanhoutte *et al.* 2009b, 85: 22-25), and in 5+post and later levels. In the Oudenburg pottery studies such beakers are classified as (fine) reduced wares, though. One individual from the infill of the large basin OS 4923 of fort level 5 and characterised by a metallic appearance, can be identified as a late *terra nigra* beaker of a type close to Brulet B4.3 (cf. Addendum 10/11: context OS 4923).

<sup>112</sup> No. 2 in the description of the grave: Mertens and Van Impe 1971, 211.

## APPENDIX 21 - Common reduced wares at the south-west corner site: handmade and wheel-turned pottery

At every level, common reduced wares prevail in the pottery assemblages. These reduced wares are dominated by the North-Menapian pottery industry. Only small portions are represented by Low Lands Ware 1, Romano-British coarse pottery and imported greywares from southern territories in the North of France. In the latest levels handmade wares in Germanic tradition make their appearance.

### 1. North-Menapian reduced pottery

#### 1.1. Introduction

The North-Menapian pottery was already identified by Thoen (1978) in the coastal plain as 'Kustardewerk'/'Coastal pottery' and by Trimpe Burger (1997) in Zeeland and at the Aardenburg fort as 'Vlaams-Romeins aardewerk'/'Flemish-Roman Ware'. However, according to more recent petrographical analysis by De Clercq and Degryse (KULeuven), this pottery was not produced in the coastal plain itself, but more likely in Sandy Flanders or at least the potters used tertiary clays originating from that region (Vanhouette *et al.* 2009c; De Clercq and Vanhouette 2011).

The distribution of this North-Menapian pottery covers the area between the mouth of the Scheldt in the north, Oudenburg in the west and the northern part of Sandy Flanders in the south and east, an area corresponding with the northern part of the *civitas Menapiorum*. Based on the distribution pattern of this ware, the name 'North-Menapian' was introduced, only of geographical significance and by no means implying any ethnical connotation (De Clercq 2009, 422).

The North-Menapian pottery was fired in a reduced atmosphere, producing a black or dark-grey surface and core; in the wheel-turned group the latter is often lighter than the surface. The group has a handmade, a coarse reduced and a fine reduced component, of which the fabrics are well recognisable.

This industry has been discussed extensively in light of the study of the pottery assemblage of the large waste-pit OS 4980 from fort level 4 (Vanhouette *et al.* 2009c). De Clercq and Vanhouette (2011<sup>113</sup>) elaborated further on the subject through the study of the North-Menapian pottery group in a wider temporal and spatial perspective, based on a selection of 26 pottery complexes found at nine different sites in the North-Menapian area – both military and civilian sites were represented – covering more or less the 1st to 3rd centuries. Although the percentages are somewhat biased by the fact that not all periods were equally covered and that the comparison between military and civilian assemblages could not be analysed for all periods, clear trends could be detected and some general conclusions on the evolution in the local/regional pottery consumption could be made.

#### 1.2. The North-Menapian handmade wares

The handmade fabric contains quartz, clay-pellets, grog and plant remains. According to granulometry the handmade fabrics can be subdivided into three main categories with subfabric 1 being fine-textured, subfabric 3 being very coarse. Their choice was presumably a functionally-related technological one, a phenomenon already noticed in earlier pottery contexts of the same region (De Clercq 2005; 2009). Oxidised spots on some vessels, and some rare rather oxidised fired vessels, may indicate that at least a portion was fired in field furnaces; the oxidising look was presumably not intended. In the handmade assemblage, most vessels were finished on a slow-wheel or turntable. Both high-quality (with thorough wheelturning finish) and more roughly made

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<sup>113</sup> Summary of unpublished paper for the Study Group of Roman Pottery Congress in Amsterdam, 24th of June 2011.

vessels are present. In the handmade wares, dishes, bowls, open and closed jars as well as beakers were produced with an increasing variety noticeable from the 1st to 3rd century. Characteristic is the abundant decoration in the handmade assemblage. While comb-score lines were most popular in the late 1st and 2nd centuries, the finishing of burnishing appears to become more and more important. Most of the vessels show patterns of burnishing which can be intense, covering the complete surface, or forming decorative schemes with vertical, horizontal or intersecting lines or zones. These decorative patterns were often applied in mutual combination or next to other decorations such as comb-scoring or – more sparsely used – grooves (see for an overview of the decorations occurring in the later 3rd century: Vanhoutte *et al.* 2009c, 132-134). The diversity and intensity in burnished patterns seems characteristic for the late 2nd and the 3rd centuries AD in the northern part of Flanders and the coastal region in particular (e.g. the site of Plassendale III near Ostend: Vanhoutte and De Clercq 2007; Oudenburg: see below).



Fig 83: Examples of the three main subfabrics in the North-Menapian handmade pottery according to granulometry. NOM HA 1: fine-textured; NOM HA 2: with medium-sized inclusions; NOM HA 3: very coarse (taken from Vanhoutte *et al.* 2009c, 117: Colour Plate 2).

### 1.3. The North-Menapian reduced wheel-turned wares

The reduced wheel-turned wares, both the coarse reduced component as its fine reduced variant<sup>114</sup>, are characterised by a hard, grey coloured fabric with a slightly irregular fracture. Sometimes the fabric shows a pale grey core with brown margins and grey surfaces. The fabric is mainly defined by well-sorted quartz in moderate to abundant quantities. Also included in the fabric are black grog, organic matter and sparse feldspar and glauconite grains. The coarse reduced products display the same fabric as the fine reduced group but with a coarser tempering and with the additional use of clay-pellets (Vanhoutte *et al.* 2009c, 118 and 125-126). Petrographic research by P. Degryse (KULeuven) and W. De Clercq (Ghent University) gave evidence of parallels between this fabric and the one of medieval pottery productions made on and from the glauconite-containing tertiary clay-formation of Asse, surfacing immediately east of Bruges and south of Aardenburg on the so called *cuesta* (De Clercq and Vanhoutte 2011). The North-Menapian wheel-turned pottery emerged in the late 2nd century. It represents a large set of forms including drinking beakers, dishes, bowls, jars and lids.

<sup>114</sup> While these were separated (or an attempt was made to separate them) during the inventory of the ceramics, it was decided here to count them as one group, for several reasons. Displaying the same basic fabrics – although the fine reduced group mostly shows finer versions – but with a finer or coarser finishing of the exterior walls, their distinction is merely a functional one. The fine reduced group comprises the beakers, while the coarse reduced group consists of all other vessel forms. In other words, the function of the vessel decided whether the fabric was made somewhat smaller or coarser, whether the walls were made thinner or thicker and whether the exterior wall was finished more extensively or less. Some 'fine reduced' vessels were not completely burnished and have local parts, e.g. near the base, which were not that thin-walled. On the other hand, some 'coarse reduced' vessels have rather thin-walled parts and show a complete burnishing. The line between the two groups is thin, and an attempt for a strict division leaves a large share of body fragments unidentified. Therefore, all reduced wheel-turned pottery sherds are counted as one group and types within this group are discussed separately in the analysis as 'fine reduced' or 'coarse reduced'.



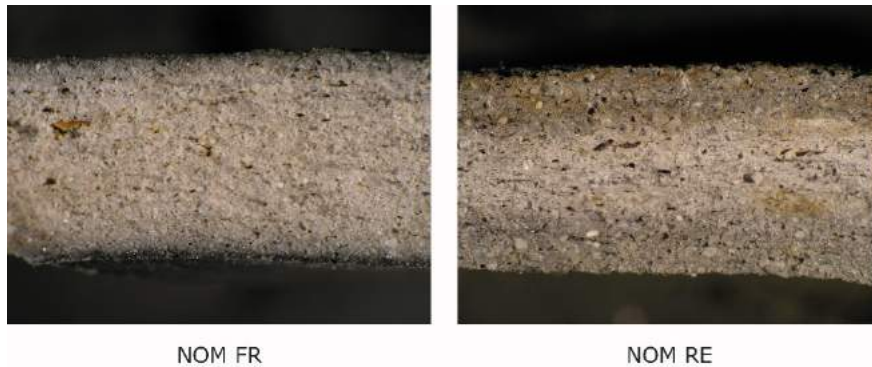


Fig 84: Example of the North-Menapian fine reduced fabric and of the North-Menapian coarse reduced fabric (taken from Vanhoutte *et al.* 2009c, 117: Colour Plate 2).

#### 1.4. Towards an integrated North-Menapian typology

A first typology for the mid-Roman North-Menapian pottery was developed in 2009 in close collaboration with W. De Clercq and W. Dhaeze based on the pottery types present in the OS 4980 assemblage, the pottery content of the large waste-pit of fort level 4 (Vanhoutte *et al.* 2009c, 135: Fig. 35). A further, preliminary elaboration of this typology was presented in 2011 by De Clercq and Vanhoutte at the SGRP Congress after the study of a selection of sites and pottery assemblages in the North-Menapian area (see above; De Clercq and Vanhoutte 2011, unpublished typology).

A further developed typology is presented here based on the pottery assemblages of the successive fort levels of the Oudenburg fort. Well-aware of this non-traditional approach, I have opted for an integrated North-Menapian typology in which both the handmade and wheel-turned component are shown at the same level, based on the given that several of their types display the same form and show mutual influences in types. This also emphasises the idea that two differently organised pottery traditions were co-existing, producing similar forms and types while influencing each other in the process.

Instead of using the division dish-bowl-beaker-pot, this typology takes the body form as starting point and the rim type as second criteria. It subsequently seeks the functional forms in which these characteristics are present. This way, parallels between the different production techniques – handmade versus wheel-turned – become clear and visible. This system also has the advantage that any 'new' type can be inserted into the typology with a new coding. A concordance table is included to clarify the associations with the 2009 typology and the former typology made by Thoen (1978, taken over in Thoen 1987) for his 'Coastal pottery' (LOK) (Table 63).

The 'body-rim' classification has been related to a functional division in basic forms: dish, bowl, beaker, pot, bottle, lid. Furthermore, the pot is divided into 'open pot' and 'closed pot'. The differences between the functional forms are based on metric rules, inspired by the ones recorded by De Clercq for his North-Menapian typology of earlier handmade wares (De Clercq 2009, 406), but with modifications prescribed by the character of the, chronologically defined, assemblage in question here. As already mentioned by De Clercq (2009), the common principles for a functional division of pottery, in fact an artificial structure, are diverse (*e.g.* Rice 1987, 215-220). In the typology presented here, the classification into dish-bowl-beaker-pot-bottle is based on the following empirical rules, specifically intended for use for this pottery category. When the total height of the vessel is  $\geq 50\%$  of the maximum diameter, the vessel is a pot, bottle or beaker. With a rim diameter  $\geq 66\%$  of the maximum diameter, the pot is an open pot; with a rim diameter between 33% and 66%, it concerns a closed pot. A pot with a rim diameter  $\leq 33\%$ , is a bottle. When the total height of the vessel is  $\leq 50\%$  of the maximum diameter, the vessel is a dish or bowl. A height of  $\leq 33\%$  of the maximum diameter points to a dish, a height of  $> 33\%$  to a bowl. A beaker

is characterised by its oblong form. The height of a beaker is always >110% of the maximum diameter, with a rim diameter <66% of the maximum diameter.

This North-Menapian typology shows forms and types present at the Oudenburg fort in the period AD c. 170-270/300 and is primarily based on the assemblages of the key contexts selected from the Oudenburg south-west corner site. For a typology covering the preceding period, we refer to the one developed by De Clercq (2009). When comparing with the typology made by Venant (PhD research: see Venant 2016) of the handmade ware spectrum in the North of Gaul at the *civitates* of the Nervii, the Tungri and the North of the *civitas* of the Remi, some similarities can be seen (*e.g.* several similar types of bowls and dishes) but also many differences.

The typology presented here is not constructed as a chronological system and should not be used as such. To ascertain the presence/absence of certain forms and types in a given period, further detailed study of all pottery assemblages of the different fort levels should be integrated with other contexts (*e.g.* of the civil settlement of Oudenburg and other sites in the North-Menapian region). Nor is it my intention to go into more detail on the distribution of the different types in the North-Menapian territory. This was first attempted at the 2011 SGRP congress (De Clercq and Vanhoutte 2011) and will be part of future research.

### **NORTH-MENAPIAN TYPOLOGY based on the pottery at the Oudenburg fort (Plate CLXXXI)**

Detailed overview on Plates CLXXXII-CC

(below: the versions in which the type occurs are listed in *Italic*)

TYPE I: FLARED FORM	(only in handmade technique)
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#### **I.1 straight, oblique wall;** everted, rounded rim

*NOM HA dish I.1*

TYPE II: IN-TURNED FORM	(both in handmade and in wheel-turned technique)
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#### **II.A in-curving-walled**

##### II.A.1 strongly incurved, profiled rim (with exterior cordons)

*NOM HA pot II.A.1 - closed*

*NOM HA (storage) pot II.A.1 - closed*

*NOM RE (storage) pot II.A.1 - closed*

##### II.A.2 convex body with upright, plain rim (variant: thickened rim at the inside)

*NOM HA dish II.A.2* (small-based and large-based version)

*NOM RE dish II.A.2*

*NOM RE dish II.A.2var.*

*NOM RE bowl II.A.2var.*

##### II.A.3 convex body with in-turned, plain rim (with or without pouring lip (p))

a: without bend

b: with bend (angular shoulder, sharply carinated to the inside)

*NOM HA dish II.A.3a* (small-based and large-based version)

*NOM HA dish II.A.3ap*

*NOM HA dish II.A.3b*

*NOM HA bowl II.A.3a*

*NOM HA bowl II.A.3ap*

*NOM HA bowl II.A.3b*

*NOM RE dish II.A.3a*



*NOM RE bowl II.A.3a*  
*NOM RE bowl II.A.3ap*  
*NOM RE bowl II.A.3b*

II.A.4 convex body with inturned rim with bend pronounced on the exterior (rib) (=lid-seated rim)  
(with or without studs on the shoulder (st))

*NOM HA dish II.A.4*  
*NOM HA bowl II.A.4*  
*NOM RE dish II.A.4*  
*NOM RE bowl II.A.4st*

II.A.5 convex body with in-turned collared rim (with or without knob(s?) on the rim exterior (K))

*NOM RE bowl II.A.5*  
*NOM RE bowl II.A.5K*

II.A.6 flat-collared/wall-sided rim (imitation of North-French type)

*NOM RE bowl II.A.6*

**II.B carinated**

II.B.1 slightly inturned, upright, rounded rim

*NOM RE pot II.B.1* – open (presumably not a bowl, although no complete profile is preserved)

TYPE III: OUTCURVED FORM	(both in handmade and in wheel-turned technique)
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III.1 everted, bending rim, no neck, globular body

*NOM HA pot III.1* – open  
*NOM HA pot III.1* – closed

III.2 everted rim, short neck, S-profiled globular body

*NOM HA pot III.2* – open (small and large version, high and low version)  
*NOM HA pot III.2* – closed  
*NOM HA (storage) pot III.2* – closed  
*NOM HA bottle III.2*  
*NOM RE pot III.2* – open  
*NOM RE pot III.2* – closed

III.3 cf. III.2, with lid-seated rim, with small interior lid groove at top of rim

*NOM RE pot III.3* – open

III.4 cf. III.2, with lid-seated rim, with deep interior lid groove

*NOM RE pot III.4* – closed

III.5 cf. III.3, with long rim, approaching the maximum diameter of the vessel

*NOM HA pot III.5* – open (smaller and larger version)

III.6 short everted, out-turned rim, ovoid body

*NOM HA pot III.6* – open  
*NOM RE pot III.6* – closed

III.7 everted rim, slightly concave neck, ovoid body

*NOM FR beaker III.7*

III.8 short, slightly everted rim, short concave neck, globular body

*NOM HA pot III.8 – open*

*NOM HA pot III.8 – closed*

*NOM FR pot III.8 – open*

III.9 short, slightly everted rim, tall upright, slightly concave neck, globular body

with studs (st): so-called ‘stud-‘beaker’

*NOM HA beaker III.9 (small and large size)*

*NOM HA pot III.9 – closed*

*NOM HA pot III.9st – closed*

*NOM FR beaker III.9*

*NOM FR beaker III.9st*

III.10 short, slightly everted rim, short concave neck, no pronounced shoulder, globular body

(so far) only known with studs on upper half body (st)

*NOM HA pot III.10st – closed*

TYPE IV: CARINATED FORM	(only in wheel-turned technique)
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IV.1 everted upper wall, flattened rim, often with chamfer

*NOM RE dish IV.1*

*NOM RE bowl IV.1*

IV.2 everted upper wall, thickened or rounded bead rim; upper wall is shorter than lower wall

*NOM RE dish IV.2*

*NOM RE bowl IV.2*

IV.3 upright to slightly everted upper wall, short horizontal rim; upper wall is higher than lower wall

*NOM RE bowl IV.3*

IV.4 slightly convex upper wall, thickened bead rim, horizontal burnishing on the body: imitation of North-French type

*NOM RE bowl IV.4*

IV.5 inturning upper wall, hooked/curled rim, horizontal burnishing on the body: imitation of North-French type

*NOM RE bowl IV.5*

TYPE V: TRUNCATED FORM	(only in wheel-turned technique)
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V.1 tall, straight neck, short, everted rim, globular body, high foot: imitation of North-French type ‘gobelet tronconique’

*NOM FR beaker V.1*

TYPE VI: BULGING FORM	(only in wheel-turned technique)
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VI.1 truncated pot with slightly bulging neck, thickened, rounded, bending rim, burnishing on the body: imitation North-French product

*NOM RE pot VI.1 – open*

VI.2. globular body, no neck, thickened, rounded rim, horizontal burnishing on the body: imitation North-French product

*NOM RE pot VI.2 – open*

TYPE VII: LID	(only lid VII.1 also in handmade technique)
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VII.1 rounded rim

*NOM HA lid VII.1*

*NOM RE lid VII.1*

VII.2 cut-off rim

*NOM RE lid VII.2*

VII.3 profiled rim

*NOM RE lid VII.3*

NOM TYPOLOGY NEW	NOM TYPOLOGY Vanhoutte <i>et al.</i> 2009c	TYPOLGY LOK Thoen 1978
NOM HA BEAKER III.9	NOM HA TYPE 2	no type
NOM HA POT II.A.1	NOM HA TYPE 1	no type
NOM HA STORAGE POT II.A.1	no type	no type
NOM HA POT III.1	< NOM HA TYPE 10	< LOK TYPE 2a
NOM HA POT III.2 closed	NOM HA TYPE 10	LOK TYPE 2a/3
NOM HA POT III.2 high open	NOM HA TYPE 10	LOK TYPE 2a
NOM HA POT III.2 low open	NOM HA TYPE 9	LOK TYPE 2b
NOM HA STORAGE POT III.2	NOM HA TYPE 13	no type
NOM HA BOTTLE III.2	< NOM HA TYPE 10	no type
NOM HA POT III.5	< NOM HA TYPE 10	< LOK TYPE 2a
NOM HA POT III.6	NOM HA TYPE 11	no type
NOM HA POT III.8 closed	no type	no type
NOM HA POT III.8 open	no type	no type
NOM HA POT III.9	no type	no type
NOM HA POT III.9st	< NOM HA TYPE 3	no type
NOM HA POT III.10st	NOM HA TYPE 3	no type
NOM HA DISH I.1	< NOM HA TYPE 4	< LOK TYPE 7
NOM HA DISH II.A.2	< NOM HA TYPE 4	< LOK TYPE 7
NOM HA DISH II.A.3a	< NOM HA TYPE 4	< LOK TYPE 7
NOM HA DISH II.A.3ap	NOM HA TYPE 5	< LOK TYPE 7
NOM HA DISH II.A.3b	< NOM HA TYPE 4	< LOK TYPE 7
NOM HA DISH II.A.4	< NOM HA TYPE 4	no type
NOM HA BOWL II.A.3a	NOM HA TYPE 6	no type
NOM HA BOWL II.A.3ap	< NOM HA TYPE 6	no type
NOM HA BOWL II.A.3b	NOM HA TYPE 6	LOK TYPE 4a
NOM HA BOWL II.A.4	NOM HA TYPE 7 AND 8	LOK TYPE 1
NOM HA LID VII.1	no type	no type
NOM FR BEAKER III.7	no type	no type
NOM FR BEAKER III.8	NOM FR TYPE 4	no type
NOM FR BEAKER III.9	NOM FR TYPE 1	LOK TYPE 8
NOM FR BEAKER III.9st	NOM FR TYPE 3	LOK TYPE 9
NOM FR BEAKER V.1	no type	LOK TYPE 10
NOM RE STORAGE POT II.A.1	no type	no type
NOM RE POT II.B.1	NOM RE TYPE 1	no type
NOM RE POT III.2 closed	NOM RE TYPE 15	LOK TYPE 2a
NOM RE POT III.2 open	NOM RE TYPE 15	LOK TYPE 2a
NOM RE POT III.3	NOM RE TYPE 16	< LOK TYPE 2a
NOM RE POT III.4	no type	no type
NOM RE POT III.6	no type	no type
NOM RE POT VI.1 open	no type	no type
NOM RE POT VI.2 open	no type	no type
NOM RE DISH II.A.2	no type	LOK TYPE 7
NOM RE DISH II.A.2var.	no type	LOK TYPE 4b
NOM RE DISH II.A.3a	NOM RE TYPE 3	no type
NOM RE DISH II.A.4	NOM RE TYPE 6	no type
NOM RE DISH IV.1	NOM RE TYPE 11	no type
NOM RE DISH IV.2	no type	no type
NOM RE BOWL II.A.2var.	NOM RE TYPE 4	no type
NOM RE BOWL II.A.3a	NOM RE TYPE 5	no type
NOM RE BOWL II.A.3ap	< NOM RE TYPE 5	no type
NOM RE BOWL II.A.3b	NOM RE TYPE 8	LOK TYPE 4a
NOM RE BOWL II.A.4st	NOM RE TYPE 7	no type
NOM RE BOWL II.A.5(k)	NOM RE TYPE 9	no type
NOM RE BOWL II.A.6	NOM RE TYPE 10	no type
NOM RE BOWL IV.1	no type	LOK TYPE 5
NOM RE BOWL IV.2	NOM RE TYPE 12	no type
NOM RE BOWL IV.3	NOM RE TYPE 13	LOK TYPE 6
NOM RE BOWL IV.4	no type	no type
NOM RE BOWL IV.5	no type	no type
NOM RE LID VII.1	NOM RE TYPE 17	no type
NOM RE LID VII.2	NOM RE TYPE 18	no type
NOM RE LID VII.3	NOM RE TYPE 19	no type

Table 63: Concordance between the North-Menapian pottery typology presented here, the - more limited - North-Menapian pottery typology presented by Vanhoutte *et al.* 2009c (based on the pottery of the large waste-pit OS 4980 of fort level 4), and the 'Kustardewerk' typology presented by Thoen (1978). (see previous page)

### 1.5. Influences and interactions in the North-Menapian pottery group

This North-Menapian pottery group was clearly rooted in the native repertoire of forms, with globular (cooking) pots and curved-walled bowls, and decorative styles, like comb-scoring and fingertop impressions on the rim (cf. De Clercq 2005; 2009)<sup>115</sup>. On the other hand, the development of this group was also influenced by other styles and foreign pottery.



Fig 85: A NOM HA open pot III.2 from the large waste-pit OS 4980.



Fig 86: A NOM HA open pot III.5 from the large waste-pit OS 4980.

<sup>115</sup> Cf. for the region between Leie and Scheldt: Vermeulen 1992. Cf. for a Flavian to early 2nd-century assemblage at Varsenare, near Oudenburg: Hollevoet 2002; cf. for two late Iron Age pottery groups (c. 200-50 BC) and an early Roman (Augustean-Tiberian) assemblage at Aalter (further inland between Bruges and Ghent): De Clercq *et al.* 2005. (c. 200-50 BC) and an early Roman (Augustean-Tiberian) assemblage at Aalter (further inland between Bruges and Ghent): De Clercq *et al.* 2005.



Fig 87: A coarse NOM HA dish II.A.3ap (Photo by F. Lagae).

The North-Menapian industry was not only attributed to the native repertoire and was influenced by Romano-British wares. New forms and decorations demonstrate that this pottery production was also effected by the Roman pottery spectrum.

Several forms and decoration patterns, mainly within the handmade group, show influences from the Romano-British Black-Burnished industry and possibly also from the continental BB-imitations along the Channel coast further south (see for the latter: Tuffreau-Libre *et al.* 1995) (De Clercq and Vanhoutte 2011). Clear indications are the imitation of certain forms like the type NOM HA pot II.A.1 and some dishes imitating the Holbrook and Bidwell (1991) (Dorset) type 58 (cf. NOM HA dish I.1), the appearance of jars with wide, everted rims sharply carinated to the wall (NOM HA pot III.1)<sup>116</sup>, the use of black coating<sup>117</sup> on some vessels (on rim and/or shoulder) and the application of burnishing patterns. Even the carinated bowls with horizontal rims NOM RE bowl IV.3 (Fig. 91), a guide fossil in the NOM group, recall forms in the BB1 repertoire (cf. Holbrook and Bidwell (1991) (Dorset) BB1 type 39.2, 39.4).

Another link with *Britannia* may be found in the small globular bowl NOM HA pot II.A.1, with profiled rim and burnished lattice decoration on the wall and with black coating on the outside of the rim (Fig. 88). It resembles the Cam 328 form (Hull 1963) well and its form and decoration may have been influenced by these globular bead-rim jars occurring in the BB2 tradition (Vanhoutte *et al.* 2009c).



Fig 88: A NOM HA closed pot II.A.1 (Photo by F. Lagae).

The exchange with *Britannia* can also be traced in the other direction. Amongst grog-tempered coarse wares listed by Pollard for East Kent, his types 45 and 46 (see Pollard 1988, 53: Fig. 15)

<sup>116</sup> The shoulderless pot with globular body and rim sharply carinated to the outside is a form typical of the coastal area and does not occur in inland handmade fabrics. As already pointed at in Vanhoutte *et al.* (2009c; with references), the absence of a shoulder relates this form to BB1 and BB2 cooking pots or similar forms from other continental coastal areas, such as a distinctive group decorated in comb-scored patterns and with a burnished rim in the Yser-Aa estuarine zone on both sides of the modern French-Belgian border and a similar group in the northern part of the *civitas Morinorum*.

<sup>117</sup> Chemical analysis of the black coating on the rim of handmade wares from Aalter and Kluizendok (near Ghent), two sites more inland, has indicated that the coating was made of birch or spruce tar (De Clercq 2009, 169). Complementary research on some samples from the Oudenburg site of handmade wares and flagons with black coating has yielded the same result (research organised by De Clercq; pers. comm.).



(Fig. 89), characterised by lugs on the shoulder, may well be attributed to the North-Menapian tradition (the stud-‘beakers’ NOM HA pot III.9st and III.10st). The examples Pollard discussed, were found at Richborough in unstratified and (according to his findings) late 1st - early 2nd-century contexts, with only two other specimens elsewhere in Kent at Eastry and Birchington. Pollard found parallels at Vindonissa (G) and in late Iron Age material from Lincolnshire, but not in south-east Britain, therefore suggesting that ‘*the possibility that they were brought into Richborough by military units as personal possessions or quartermasters’ stores should not be overlooked*’ (Pollard 1988, 45). Although the North-Menapian ‘stud-beaker’ is mainly characteristic for the 3rd century, the pottery assemblage of the site of Stene, near Ostend, and found on the slopes of an artificially raised platform from the late 1st-early 2nd century AD, testified to a much earlier start date for this vessel type (Demey, Vanhoutte *et al.* 2013). Hence, the stud-beakers found at Kent may well have been North-Menapian or influenced by the North-Menapian products. Worth mentioning is the presence at Richborough of some pots that would easily fit in in the North-Menapian typology based on form and decoration, *e.g.* the open pot no. 29 on Plate XXII of the first Richborough report (Bushe-Fox 1926) with vertical comb-scoring on the upper half of the body, an identical type as open pot NOM HA III.2. A comparative study of fabrics should be a topic for future research.

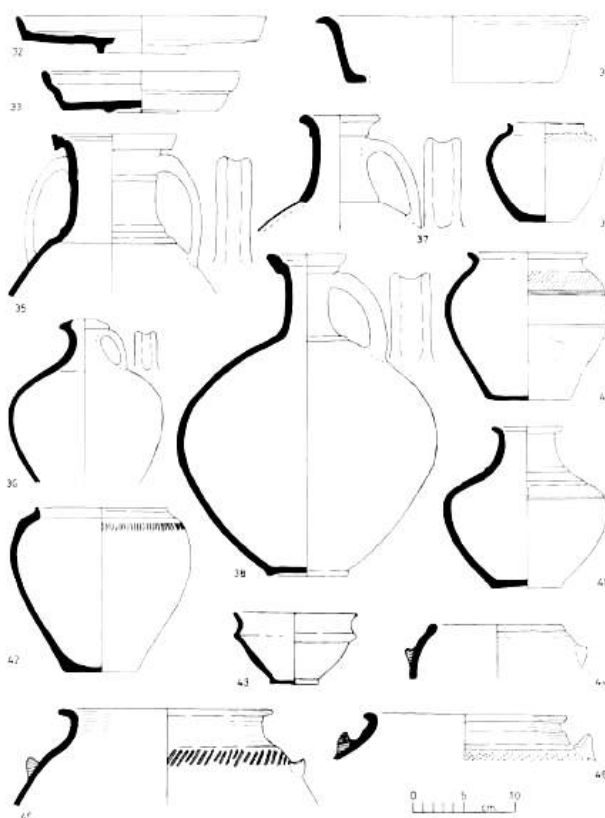


Fig 89: Pollard 1988, 53: Fig. 15, taken over here for vessels nos. 45 and 46, illustrated below.

The form of the beakers type III.9, both in handmade and in wheel-turned techniques, recall earlier thin-walled forms in North-Gaulish *terra nigra* (Deru 1996, types P46–53) (Fig. 94). Other North-Menapian forms are clear imitations of North-French prototypes. Both the carinated bowls NOM RE IV.4 and IV.5 recall the North-French ‘bol caréné’ (cf. for IV.4: Tuffreau-Libre 1980a, 53: type bol caréné IIa and IIb; for IV.5: idem, 47: type VIIa). The NOM RE beaker V.1 (Fig. 90) is clearly an imitation of the North-French ‘vase/gobelet tronconique’ (cf. Tuffreau-Libre 1980a, 100: type ‘vase tronconique’ IIIc). The NOM RE open pot types VI.1 and VI.2 also recall forms in the North-French repertoire, very similar to *e.g.* types from the Bruay-Laboussière kilns (cf. Clotuche and Willems 2012, 72: Fig. 14). The bowl with vertical wall-sided rim (NOM RE bowl II.A.6), a rare type in the North-Menapian assemblage, can also be considered as an imitation of a North-French product; it can for example be recognised at Famars as type Ner J6 (Blondiau *et al.* 2001). The imitation of

North-French products in the North-Menapian repertoire is enhanced with several forms by taking over the decorative patterns of the horizontal linear burnishing.



Fig 90: Two NOM FR beakers V.1.



Fig 91: A NOM RE bowl IV.3 (Photo by F. Lagae).

The beakers (NOM RE beaker III.9st) and the pots (NOM HA pots III.9st and III.10st) deserve some closer attention. On the beakers usually one row of three or four studs or bosses was applied to the shoulder after the vessel was turned; on the handmade pots two rows with alternating studs occur. The studs were probably applied to the pot to improve the grip. The type apparently emerged during the second half of the 2nd century in the Coastal Plain. It is unclear if this type was influenced by other pottery traditions or if it was an innovation introduced by the potters (Vanhoutte *et al.* 2009c). Both the beakers and the pots also include a version without studs. The studs seem to have been functional as well as decorative. Applied elements on handmade vessels are not unknown in Northern Gaul (cf. Herbin 2002). However, these North-Menapian 'stud-beakers' and 'stud-pots' are distinctive by the combination of the studs with the globular form, the fine-textured fabric, the delicate burnishing and the coating on the neck and rim. These elements make them very characteristic for North-Menapian ware (see also the distribution of stud-beakers and stud-pots in the North-Menapian region: De Clercq 2009, 447). The beakers were probably used for drinking and serving liquids; for their larger pot versions De Clercq suggests a function as collective beaker (De Clercq 2009, 441). That these large stud-pots/beakers had a specific significance, might be indicated by for example the complete, decorated individual which was found in the bottom fill of one of the 3rd-century wells<sup>118</sup> at the border of the settlement to the east of the fort (site Belleroche

<sup>118</sup> Well WAP10 (6113).

(ET28); unpublished material, excavations in 2014 by BAAC (Dysselinck *et al. forthcoming*)) and which can be interpreted as a closure deposit.



Fig 92: A partly preserved NOM HA closed pot III.10st, a so-called stud-pot/beaker, from well OS 22926 of fort level 4.



Fig 93: So-called stud-beaker (NOM HA closed pot III.9st) which was thrown into the well OS 22926 (structure level II) of fort level 4 after its abandonment.



Fig 94:A NOM FR beaker III.9st, a so-called stud-beaker, from the large waste-pit OS 4980 of fort level 4.

An interesting remark can be made about the lids in the NOM repertoire. While lids occur regularly in the reduced group, handmade lids are extremely rare and only appear with plain, rounded rim (NOM HA lid VII.1). Their rarity seems to be a distinctive characteristic for the coastal NOM group, since handmade lids are abundant in handmade pottery assemblages in the adjacent hinterland region between Ghent and Bruges.

## 2. The Low Lands Ware 1 industry

The Low Lands Ware 1 fabric has been defined by De Clercq and Degryse (2008) as the product of one or more major pottery centres probably situated near the Scheldt estuary in the Bergen-op-Zoom area in the Netherlands. The core distribution of this ware covers the lower Rhine, Meuse and Scheldt valleys, mainly the region to the east and north of the Scheldt. Low Lands reduced ware vessels are rather rare to the west of the Scheldt. The Low Lands Ware 1 includes tablewares and fine wares (dishes, flagons, beakers) as well as jars and containers from the Holwerda (1923) 139-142 type series. This industry was first believed to cover a chronological range from AD 60 to at least 270 (De Clercq and Degryse 2008) but recent research suggests continuity into the 4th century (unpublished material; pers. comm. V. Van Thienen and W. De Clercq). Oudenburg and the Coastal Plain were situated outside the main distribution zone of the LLW1 industry, but some vessels did find their way there. They only represent a very small minority of the fine and coarse reduced wheel-turned vessels. In key context OS 30916, a LLW1 Holwerda 141a container has the typical second half of the 2nd century rim (see Addendum 10/11: key context OS 30916, no. 38). A Holwerda 142, found in the large waste-pit OS 4980 of fort level 4, has a typical 3rd-century bending rim (Vanhoutte *et al.* 2009c, 122: Fig. 21, no. 9). The same context OS 4980 yielded four (Vanhoutte *et al.* 2009c, 110: Fig. 13, 11-14) and well OS 22926 of the same level two (see Addendum 10/11: structure level V: nos. 45, 46) S-profiled bowls in LLW1 fabric which can be seen as Chenet 342 prototypes. They closely resemble examples in the same fabric found in contexts at Breda dated to AD 250-300 (van Enckevort 2004, type Vt 76-77). The LLW1 pot with everted rim from the construction pit of well OS 22926 (no. 21) and a fine reduced beaker in the waste fillings

(structure level IV: no. 13) form exceptions in the Oudenburg assemblage (see Addendum 10/11). In contrast to these minorities in reduced wares, flagons in Low Lands ware I were very popular at the Oudenburg fort.

### 3. Imported greywares from southern territories in the North of France (By *S. Willems and S. Vanhoutte*)

#### 3.1. Introduction

From the pottery of the Roman level at the south-west corner site of the Oudenburg fort, 263 fragments were put aside in comparison to local/regional North-Gaulish productions as coming from more southern territories. The difference with these samples was clear, whether it was by rim form, surface treatment or fabric.

Six different productions can be distinguished in the assemblage of which the potteries are all localised in the present northern part of France, largely encompassing an area from Normandy to the Champagne-Ardenne region. They include productions from the *civitates* of the Nervii, the Atrebatens, the Ambiani, the Vellocassi and the Remi. Twenty-eight pottery sherds representing thirteen individuals were not attached to a specific production site. They all show a kaolinite rich clay, a feature typical of several production sites in France, from the Cambrai and Arras region to the Champagne as well as the La Calotterie potteries. Combined with their overall form spectrum, they can be connected to the French productions.

Not counted in in the present group, is a small assemblage of some unattributed 30 fragments which are characterised by a surface with very rough feel. Their fabric is dark-grey, sometimes with a light-brown or red-brown core, moderately tempered with fine, opaque grey, subangular quartz grains, white mica, sparse black iron-rich grains and calcite. It corresponds to the fabric recognised at Ardres by Florent and Cabal (2004). Significant quantities of this fabric have been found at Théroouanne, the capital of the *civitas Morinorum*, and at Boulogne (Dhaeze and Seillier 2005, 631). In the publication of the pottery assemblage of the large waste-pit of fort level 4 (Vanhoutte *et al.* 2009c, 123), this pottery has been described as 'Ardres reduced ware' (ARD RE)<sup>119</sup>, however, although this is not impossible, its production at Ardres has so far not been proven. These fragments are present in fort level 3, 4 and 5 contexts.

In general, one can say that the northern-French productions only represent a very low percentage of the coarse reduced wares of the Roman level (77 individuals within a total of 4520 individuals of the Roman level, hence only 1.7%). In the post-Roman and mixed levels, more of these imports were found but these have not yet been studied. Since it is thought that much material from fort level 5 has been dug-up in mainly the bottom layers of the post-Roman level, further investigation of these pottery fragments is certainly a future consideration for research. Considering the huge presence of the local/regional handmade and wheel-turned reduced cooking wares, next to fine reduced local/regional tablewares, the imports in question are of low significance, especially compared to for instance fine ware imports. The presence of the northern French products merely illustrates the contact Oudenburg might have had with merchants from the South, and even more probable, with soldiers coming from garrisons stationed for instance at Boulogne-sur-Mer. For the research on the pottery productions in the North of France, the presence of certain products at fort levels 4 and 5 are very important since they indicate which potteries were still in place.

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<sup>119</sup> Vanhoutte *et al.* 2009c identifies eleven sherds, accounting for seven MNI, as 'Ardres reduced ware'. Further fabric analysis has concluded to another origin for four of these individuals. One of the individuals (Vanhoutte *et al.* 2009c, 122: Fig. 21, 7) appears to be a Bruay-Labuissière product; three other individuals (*idem*, 122: Fig. 21, 18; 124: Fig. 22, 1) can now be recognised as from La Calotterie.



### 3.2. The Bruay-Labuissière productions

In total 169 pottery sherds for a total of 39 individuals were identified as certainly coming from the Bruay-Labuissière kilns. The export of Bruay-Labuissière products, commonly misidentified as Arras wares, is not surprising. The site of Bruay was one of the major pottery industries, situated to the north of the *civitas* capital Arras, in the Atrebatum region. Distribution maps have shown its major export to the West, to *Britannia* and to the North, in this manner blocking the Arras productions (Clotuche *et al.* 2010). Two different fabrics can be recognised in the Oudenburg products, namely a sandy variant used for cooking wares and a very fine variant for tableware beakers (see Table 65). The sandy fabric contains up to 25% large mono-crystalline rounded quartz inclusions, but also glauconite and white grog. Next to these larger inclusions, finer inclusions of mica, quartz, glauconite and iron oxide complete the spectrum. Although the clay is whitish, it is silicium-based and not kaolinite-based. The second fabric variant is a very fine one, also of a white silicium-based clay, containing white grog, iron oxides, mica and glauconite, all of very small size (Borgers *forthcoming*).

Popular forms for export to Oudenburg were the beakers and pots (Plates CLXXIV-CLXXV).

#### 3.2.1. Beakers

The beakers (at least sixteen individuals) are long-necked, straight or bulging, called 'truncated pots'. The difference between straight and bulging is a matter of chronology. The straight necks are mostly found in fort levels 2 and 3 (Plate CLXXIV: 1-5; one rim not ill. (OS 80925: no. 33)), while the bulging ones appear at levels 4 and 5 (8-12).

Straight necked beakers found in fort levels 4 or 5 (6<sup>120</sup>-7) must probably be seen as residual material. In Tuffreau-Libre's article on the material from one of the kilns, these truncated pots are classified under type IIb, dated to the first half of the 2nd century AD (Tuffreau-Libre 1980a, 99-100). Bayard (1980, 190) has classified this type as his type 4. On the consumption site Amiens 'Vanmarcke' the beakers with vertically straight necks are still present in contexts dated to the end of the 2nd and the first half of the 3rd century (Bayard 1980, 171, Pl. 14). Larger variants (cooking pots), type Bayard 25b, are seen up until the beginning of the 3rd century. The contexts from Oudenburg suggest that all pots with straight necks were still in use at least until the middle of the 3rd century, which corresponds with the data from the Amiens contexts.

The beakers with a bulging neck are classified under Tuffreau-Libre type IIa, Bayard 31 or Bruay type F2a or B (Roger 1972). Illustrated examples are nos. 8-12<sup>121</sup>. Another example was recovered from fire layer OS 7957/7971 (see Addendum 10/11: key context OS 7957/7971, no. 92), marking the end of fort level 4. The bulging of truncated necks is a phenomenon observed on several North-Gaulish sites from the late 3rd century onwards, for instance at Famars (Willems *et al.* 2017a). The bulging is less noticed on sites more to the south, like Amiens or sites in the Viromandui region (Vermand), although examples exist, for instance in contexts from the period AD 320-350 at Saint-Quentin (Bayard *et al.* 2010, fig. 14 : no. 2192-7). Its appearance from the late 3rd century onwards and continuing in the 4th century corresponds well with the presence of these bulging beakers at fort level 4 and 5.

Two beakers are of a different type, with rounded bodies and decorated with knife-trimmed decoration (13-14). This sort of beaker is an early type, found in levels 1 (13) and 3 (14). A small rim fragment with the top of the knife-trimming decoration was preserved in context OS 7957/7971 (see Addendum 10/11, OS 7957/7971: no. 49). They are not comparable to Bayard type 3 beakers found in the Menen contexts in the south of West-Flanders for instance (Dhaeze *et al.* 2015), where they seem to come from the Tournai/South-Menapian region. They resemble the Bayard type 3

<sup>120</sup> Beaker no. 6 was found in the large waste-pit OS 4980 of fort level 4 and has been catalogued in the publication of its pottery assemblage under the more general name 'Atrebatian reduced ware', pointing to the *civitas* of the Atrebatii to which the pottery kilns of Bruay-Labuissière belong (Vanhoutte *et al.* 2009c, 122: Fig. 21, 10).

<sup>121</sup> Beaker no. 11 originates from the large waste-pit OS 4980 of fort level 4 and has been wrongly identified in the publication as Ardres reduced ware (Vanhoutte *et al.* 2009c, 122: Fig. 21, 17).



beakers found at Amiens, clearly imported from the Atrebatum region (Bayard 1980, 191, Pl. 24). According to Bayard their date stretches from at least the middle of the 2nd century until the middle of the 3rd century at its latest (Bayard, 1980, 189). It is interesting to read that these beakers seem to live on during the 4th century on the British sites, for instance at Colchester (form 395). It could reflect intensive contacts between the Continent and *Britannia*, having influenced the production of these beakers.

### 3.2.2. Pots

A second important group are large bulging pots of different variants. The functional separation between beakers and pots is most of all made because of their difference in volume since their surface treatment is very similar to that of the smaller tableware beakers, namely intensive burnishing or decorative burnished lining. Their bulging upper parts are still more inwards than the lower parts, and they must be seen as proto two-lobed beakers, types Tuffreau-Libre IIc and IIb. The example from Oudenburg (15), with knife-trimming decoration, was found at fort level 2 which corresponds well to the idea of an early form of bulging neck pots or double-lobed pots. Another example (16) shows a bulging neck and an everted rim, close to the bulging pots. As several variants of the double-lobed beaker exist, this Oudenburg individual possibly belongs to the same group. A close parallel was found in context VI from Amiens 'Chantier du Centrum' (1977)', dated before the middle of the 3rd century (Bayard 1980, 176, Pl. 18: 9), which corresponds well to the date of the Oudenburg context in fort level 2.

The double-lobed beaker Tuffreau-Libre type IIc is known by Tuffreau-Libre in contexts dated from the late 3rd century onwards (Tuffreau-Libre 1980a). In Tuffreau-Libre's article on one of the kilns from Bruay-Laboussière (Tuffreau-Libre 1980b, fig. 14, 307) she refers to these specific pots as being found in the kilns excavated in 1971. In the first typology of the Bruay productions by Roger (1972), following the extensive 1971 digs, these are classified under types F2 b, c and d (and dated there to the 2nd century, which seems early). An almost complete beaker of this type was found in the filling-in of the well OS 22926 of fort level 4 (17). Also the pit OS 7949 of Unit I of fort level 4 contained an example (18). Worth mentioning here is the complete profile recovered from the post-Roman level (19); it was found in the top fillings of the robber trench of the stone defensive wall at the west side of the site. That this almost complete beaker was found at this location, can at least be called remarkable and suggests a specific deposition.

Another example, of which the lower part is lacking (20), was found in a subsidence level covering the primary fillings of the large waste-pit OS 4980 and attributed to the end of fort level 4 or fort level 5. It could belong to a double-lobed pot, Tuffreau-Libre type IIb, typical of the 4th century (Tuffreau-Libre 1980a).

The rest of the repertoire is constrained to a few examples of other types of pots, bowls and a lid. The other pots consist of a pot with concave neck (21) from fort level 2 with a burnished surface, a pot type Bayard 32 (Bayard 1980) from fort level 3 with decorative burnished lattice decoration (22), a pot with concave neck and everted flattened rim of unknown type of fort level 4 (23) and a pot of fort level 5 imitating Eifel coarse wares of type Alzei 27 (Plate CLXXV: 24). Both the concave necked pots (21 and 23) are forms which, chronologically seen, do not yield much information, as they stay popular all along the Roman and late Roman periods.

Type Bayard 32 (22) is typical of the end of the 2nd and the first half of the 3rd century. It was found at fort level 3, which corresponds well to the dating in the contexts from Amiens (Bayard 1980). The Alzei 27 imitation form (24) has been noticed on most of the late Roman sites in the North of France, for instance at Saint-Quentin in contexts dated to AD 390-410 (Bayard *et al.* 2010, 185 and fig. 21). It is not surprising that this rim was found in fort level 5, which is *an sich* very interesting since it confirms an ongoing production at Bruay at the end of the 4th century.

### 3.2.3. Bowls

The tableware and cooking bowls are represented by eight individuals. Most of them belong to the carinated type with a straight upper part, becoming bulged later, as noticed in the pot and beaker forms. The straight neck bowls stay popular all along the 3rd century, and are rather useless for chronological interpretation. There is a small evolution in the rim forms though, from flat everted horizontal rims to more rounded rims or crooked rims. The bowl with the flat horizontal rim (25) is clearly an early example and this is confirmed by its position at fort level 2. A second one, found at the same level, shows a more developed rim, but the straight upper part indicates an early date as well (26). By the end of the 3rd century the necks begin to bulge, as seen on the individual of fort level 4 (27). Finally a carinated bowl, found at fort level 2, shows a crooked rim and a rather rounded bulging neck (28). It is close to Bayard type 19 (Bayard 1980) but with a shorter neck. Bayard 19 is typical of the end of the 2nd and the first half of the 3rd century which corresponds well to the dating for the context here at Oudenburg.

Also produced at the Bruay-Labuissière workshops are a slightly carinated bowl with straight rim (29) and an S-shaped bowl with a very rounded body (30).

The bowl with the vertical upright rim (29) has received a burnished decoration consisting of lines on the outside and lines and a radial decoration on the inside. The decoration is rather unusual for the Bruay-Labuissière productions as we do not know of similar examples, but the fabric suggests its origin. The decoration of bowls and plates with radial burnished lines is typical of late-Roman contexts after AD 260 and has been noticed on several sites in North-Gaul, like Famars (Willems *et al.* 2017a), Noyelles-lès-Seclin (Willems 2015) and La Calotterie (Ketels 2001). The form itself is known from late Roman contexts for instance at Amiens (Bayard *et al.* 2010, 174, fig. 10). The Oudenburg bowl was recovered from the filling-in of the well OS 22926 of fort level 4 which corresponds well with the popularity of the burnished radial decoration from the late 3rd century onwards.

The bowl with wide, rounded body and an everted rim which gives it an S-shaped overall form (30), was recovered from the large waste-pit of fort level 4<sup>122</sup>. Such S-shaped bowls are found in late contexts at Amiens (Bayard *et al.* 2010, 147, fig. 10). This form seems to be an evolution of type Bayard 21 (Bayard 1980) which is dated to the end of the 2nd and the first half of the 3rd century.

### 3.2.4. Lid

A final Bruay-Labuissière product from the Roman level at the south-west corner is a lid base with three perforations (31), also recovered from the filling-in of the well OS 22926 of fort level 4.

## 3.3. The productions from La Calotterie

The kiln site of La Calotterie is situated on the border of the Morini and Ambiani *civitates*, on the south side of the river Canche in Ambiani territory. The site is known to have been producing pottery from at least the end of the 1st century until the Middle Ages, seemingly without interruption (Ketels 2016; Bocquet-Liénard and Routier 2016). The Roman productions are characterised by a very granular sandy fabric containing large quartz (Clotuche *et al.* 2010), giving its surface a very coarse look. Petrographical and chemical analysis has only been performed for medieval productions which are macroscopically very close to the Roman fabrics. For a characterisation of fabrics we therefore refer to a recent article concerning the Carolingian productions from La Calotterie (Thuillier *et al.* 2015). The sandy fabric, also present here at Oudenburg, is characterised by abundant translucent small-sized well-sorted white and pink quartz inclusions (Table 65). Chemical analysis has shown that the fabric is of homogeneous composition, poor in iron oxides and very rich in quartz inclusions, up to 78%. Its origin is thought to be the St. Aubin clays, with sand inclusions added to the clay. The pottery site is situated on a plateau

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<sup>122</sup> Vanhoutte *et al.* 2009c, 123, described there under the more general term 'Atrebatian reduced ware'.

characterised by the presence of sandy clay, Ostricourt sands and a layer of kaolinite rich clays (Coupe *et al.* 1977). At the late Roman period the potters chose this kaolinite-based (thus white) clay, instead of the sandy clay, giving it a neater look. A production of fine tablewares, decorated with knife-trimming, emerged at that time. Their fabric is characterised by a very fine white matrix and a bluish grey surface. Other productions, using a white clay, have been identified all along the coast of the Morini and the Ambiani, and are classified within a large group of coastal productions ('PBL, pâte blanche du littoral') of which the kiln sites have yet to be discovered. Examples of these productions are known at Attin and Quend (Chaidron and Willems 2016) at the end of the 4th century, and at Beutin (Flahaut 2016).

At the south-west corner site of the Oudenburg fort, twelve individuals, for a total of 22 pottery sherds have been identified as coming from the Calotterie kilns. It is surprising that the fine late Roman tablewares are absent from the repertoire at Oudenburg. Forms most represented are pots; only one beaker, a flagon, and two bowls have been counted.

The beaker (32) is characterised by a long bulging neck and a clear transition to the very short lower part of the vessel. The neck is decorated with areas of burnishing, but no knife-trimming is observed on the transition zone. The overall form of the beaker corresponds well with 4th-century beakers from La Calotterie. Ketels classifies them under type 29 and dates them to the end of the 3rd or beginning of the 4th century (Ketels 2001). Examples have been found both at Attin and Quend in contexts from the beginning of the 4th as well as from the end of the 4th - beginning of the 5th century (Chaidron and Willems 2016, 176, fig. 2; 280, fig. 5; 286, fig. 10). The beaker from Oudenburg is very similar in form to the beakers at Quend dated to the beginning of the 4th century, but was found in a context from fort level 3. Maybe the lack of knife-trimming decoration points to a chronological difference, this one being an earlier variant?

A flagon (of which the rim is missing) (33) has a fabric that is not easily identifiable because of the burnt matrix. Because it seems kaolinite rich clay was used, we have put it in the La Calotterie group, as it is close to some of the 4th-century examples in our reference collection. It could, though, belong to the larger group of white clays from the coastal zone. Comparisons were found in several funerary contexts in the region, namely at Beutin (Flahaut 2016) where the author also references to examples at Etaples, or at Marenla where three examples were found in three different graves dated to the 4th century (Piton 2006). In the pottery study written by S. Dubois, an interesting link is made to the Alice Holt-Farnham potteries where flagons with burnished lines on the neck are also produced (Lyne and Jefferies 1979). They belong to Class 8 type (Lyne and Jefferies 1979, 51, fig. 40) or Fulford (1975) type 20. The production is dated at Farnham between AD 100 and 270 but no further information is given concerning the chronology of this particular type of vessel. The fact that the Oudenburg example was found in a fort level 5 context, namely the primary fill of the inner well of the double well structure OS 2562 rather indicates a late chronology in correspondence with the examples from the late Roman funerary sites in France.

Two bowls from La Calotterie are known from the Roman level at the south-west corner site, one with an inturned body and a slightly carinated top rim (34) and a carinated bowl with a gully-rim (35). Bowls with an inturned body and a slight carination are known from late Roman contexts like Amiens (Bayard *et al.* 2010, fig. 10). At Oudenburg it is not surprising to find it in a fort level 5 context (34). Carinated bowls with an inner gully-shaped rim are known from contexts at Saint-Quentin dated around AD 340-360 (Bayard *et al.* 2010, fig. 16, no. 2103-2), and at Attin as well as at Quend dated to the beginning of the 4th century. At the latter the inner gully is present with a large storage jar instead of a bowl (Chaidron and Willems 2016, fig. 13). The form of the rim and the neck are comparable though. Even if these carinated bowls are not classified in the Ketels (2001) typology, their surface treatment and fabrics point to a coastal provenance around La Calotterie. Their form spectrum is typical of 4th-century French contexts, on the coast but also inland. This corresponds well with the find context of the Oudenburg bowl (35), the construction pit of the double well OS 2562 of fort level 5.

Four pots, of which three were recovered from the large waste-pit OS 4980 of fort level 4<sup>123</sup> and one from the construction pit of well OS 2562 of fort level 5, were also produced at La Calotterie (36, 37, 38). They display a small beaded or triangular everted rim and no neck. Parallels are recorded at Attin (Chaidron and Willems 2016, fig. 11 and 14) and at Saint-Quentin (idem, fig. 22) in a context from AD 390-410; they might represent a type that already started at an earlier date as the two pots from the primary infill of the large waste-pit OS 4980 are accompanied by chronological evidence pointing to the period c. AD 268-275.

### 3.4. Cambrai region productions

Six individuals for a total of eleven sherds can be attributed to the Cambrai region productions. We know from the study of the Pompeian red plates that production in this region continues well into the 4th century, as examples from Oudenburg, but also at Cambrai testify to (Geoffroy 1997, fig. 11). The Cambrai late grey wares are characterised by a very fine silt-sized matrix made with a kaolinite rich clay (Table 65). The surface is very fine, often burnished, and of a light grey color. The matrix contains large amounts of mono-crystalline quartz inclusions, iron oxydes and small-sized glauconite (Borgers *forthcoming*).

The repertoire represented by the Cambrai region products includes three dishes, a possible bowl (not ill.) and two pots.

The three dishes (Plate CLXXV: 39, 40, 41) are all of the same type, namely a carinated plate with a rounded or triangular rim. This kind of dish became popular at the beginning of the 2nd century as shown by examples from the consumption site at Famars (Willems *et al.* 2017a). This type seems to exist for several centuries as examples from late Roman contexts at Saint-Quentin suggest (Bayard *et al.* 2010, fig. 20: context dated to AD 390-410). The Oudenburg examples were found in the large waste-pit OS 4980 of fort level 4 (40 and 41<sup>124</sup>) and the construction pit of the large basin OS 4923 of fort level 5 (39), which makes it difficult to assess whether these plates are residual items or not. When one compares to contexts from Reims, these dishes are comparable to the Reims A1 type, present in periods VIII to X, from the first part of the 2nd century onwards till the second half of the 3rd century (Deru, 2014). The low numbers of dishes counted in the contexts at Reims indicate that it was probably not a typical Champagne region form but rather inspired by Nervian and Viromandui forms.

The pot (42) is definitely not a residual individual as its ribbon shaped but crooked rim with several mouldings is a typical rim of the late 3rd and 4th century repertoire. Similar forms are found in late contexts for instance at Amiens (Bayard *et al.* 2010). The Oudenburg pot belonged to a mixed context containing material from fort levels 2 to 5.

### 3.5. Arras productions

As could be expected, the Arras region products are very rare at Oudenburg, as they are blocked by the industry of Bruay-Labuissière, also situated in the Atrebatès region but more to the north. Arras fabrics are easily recognisable by their kaolinite rich clay and layered matrix caused by abundant quartz (Table 65). It is the combination of this layered kaolinite-based matrix with a high firing temperature, giving it a sort of glazed structure, that makes them so easily distinguishable from other productions. Like Cambrai, the matrix contains abundant rounded mono-crystalline quartz, grog, iron oxydes and glauconite (Borgers *forthcoming*). The larger inclusions represent 25% of the surface, giving the fabric a heterogeneous look and irregular break. The Arras fabrics are very comparable to those of the Cambrai region because of the kaolinite rich clay containing

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<sup>123</sup> Pots nos. 36, 37 and 38 were described in Vanhoutte *et al.* (2009c, 122: Fig. 21, 18; 124: Fig. 22, 1) as 'Ardres reduced wares'. Further fabric analysis based on new insights into the pottery production of La Calotterie has enabled us to recognize them as La Calotterie products.

<sup>124</sup> Cf. Vanhoutte *et al.* 2009c, 124: Fig. 22, 3.

abundant quartz and grog, but the quartz inclusions are of superior size in the Arras wares. A slight difference in firing techniques is also identifiable, namely a slow cooling process that gives a lighter surface colour than the core of the break which is of a deeper grey. The distinction between core and fringes of the fresh break is less neat than in the Cambrai products where the cooling process seems to have been faster giving neat fringes.

Two individuals from the Roman level at the Oudenburg site, for a total of 24 fragments, were recognised as coming from the Arras region. Only a foot of a tableware beaker (no. 43) and a bowl (no. 44) could be identified. The form of the latter is comparable to the bowl in the La Calotterie fabric, although the Arras bowl is slightly more straight-walled. Its overall form is inturned, with a small carinated shoulder. Its outer surface is decorated with burnished lining. It is exactly the same type as several examples from the late Roman contexts of Amiens (Bayard *et al.* 2010, fig. 10). The beaker belonged to the first filling-in of the inner well of the double well structure OS 2562 of fort level 5, while the bowl was found in its very last fillings.

### 3.6. Champagne productions

Four individuals for a total of only five sherds were recognised as Champagne region products, namely a large dish or shallow bowl, a cooking bowl and a pot, and an unidentified form, maybe a dish. For the analysis of products from the Champagne region all information on types and chronology is taken from Deru 2014.

The fabrics encountered at Oudenburg all show a white kaolinite-based matrix. They correspond to group RUB-CHAM2, characterised by a fabric containing 15-20% of medium rounded monocrystalline quartz inclusions (Table 65). Other inclusions consist of grog and iron oxydes, but these are very rare. The matrix often shows a marked layered structure (Biegert, Deru *et al.* 2004). The surface is of a very dark grey bluish color, rather pimply caused by the quartz inclusions.

The large dish or shallow bowl with burnished inner and outer decorative lining (Plate: CLXXVI: 45) is probably a variant of type Reims J24 showing a rim much more inturned than the example found at Oudenburg. We notice that forms, identified as Reims J24, become straighter in late contexts at Reims from period XIII, which is dated to AD 370-420, onwards. The Oudenburg example however belongs to fort level 4.

The cooking bowl (46) is a Reims J2 form, emerging during period IX (AD 150-230/240), most popular during period XI (AD 280-320) and in decline from period XII onwards (AD 310-380). The Oudenburg example was recovered from a fort level 2 context, in line with the initial phase of this form.

A pot with internal gully (47), close to Reims P10 forms, may also correspond to a non-identified pot form from period XIII at Reims, dated to AD 370/380-420, where it did not receive a typology number. The Oudenburg individual was recovered from the construction pit of the large basin OS 4923 of fort level 5.

### 3.7. Products made with kaolinite rich clays

Fourteen individuals for a total of 28 sherds cannot be attributed to a specific production but are characterised by a white firing clay. Their white clay matrix indicates the use of kaolinite rich clays (cf. Table 65). This may point to northern French productions around La Calotterie or other regions using kaolinite rich clays (characterised by a high level of aluminium and titanium in contrast to a low level of iron oxides) such as Arras, Cambrai or the Champagne region, where this has been demonstrated by chemical and petrographic analyses (Borgers *forthcoming*). Different variants have been encountered in these regions, and also in the Oudenburg material, without being able to distinguish a real group.

The forms all belong to the late Roman repertoire. Most of them (eight individuals) belong to pots (Plate CLXXVI). Almost all of them find parallels in the late Roman repertoire at Picardy:

- 48 (fort level 5/post, last filling-in of double well OS 2562): beaker with moulded beak-like rim: parallel for the rim found in a pot from Attin (Chaidron and Willems 2016, fig. 13, no. 4),
- 49 (fort level 4): pot with everted rim and rounded body, parallel to Quend, early 4th century (Chaidron and Willems 2016, fig. 5, no. 8),
- 50 (fort level 5): this pot with moulded gully-like rim finds parallels in the repertoire from the south of Picardy during the 4th century ((Bayard *et al.* 2010, fig. 25, no. 26),
- 51 (fort level 5): pot with almond-shaped rim, small neck: parallels at Quend, early 4th century (Chaidron and Willems 2016, fig. 7, no. 4), as well as several examples from Attin,
- 52 (fort level 5): pot with inner gully, like examples from Attin (Chaidron and Willems 2016, fig. 15), dated between AD 390 and 410/430, but also from Quend dated to the beginning of the 4th century,
- 53 (fort level 5): pot with hooked everted banded rim with parallels from Attin for example (Chaidron and Willems 2016, fig. 13, no. 6),
- 54 (fort level 5): pot with a straight ribbon-shaped everted rim with parallels at Quend, early 4th century (Chaidron and Willems 2016, fig. 2, no. 4).

Pots 48, 50, 51, 52 and 54 were all retrieved from the last fillings of the inner well of the double well structure OS 2562 of fort level 5. Pot 53 belonged to the shaft in between both frameworks from this context, a closed-off level which came into existence immediately after the installation of the inner well and thus firmly dated by the dendrochronological analysis of the wood with a *terminus post quem* of AD 379/380.

Besides pots, some cooking bowls display the kaolinite rich clay fabric. A presumed cooking bowl with long everted rim, no neck and bulging body (55), also found in the last filling-in of the OS 2562 context, finds parallels with finds from Quend, early 4th century (Chaidron and Willems 2016, fig. 6, no. 3-4). Another bowl (56) was found in the post-Roman level and shows an inturned rim with a lining accentuating the inner rim. Parallels are known from Quend in early 4th century contexts (Chaidron and Willems 2016, fig. 2, no. 7).

All these examples and the fact that they so easily find parallels within the coastal repertoire at Attin and Quend, south of La Calotterie, indicate a link with this particular region. Some of the fabrics certainly belong to what are called the white coastal productions, not identified as belonging to the La Calotterie products ('PBL, pâte blanche du Littoral' (Chaidron and Willems 2016, 281). Other parallels, both in form and fabric, are found at Beutin, again a coastal site within the same region (cf. Flahaut 2016).

### 3.8. Two 'oddities'

A very interesting find comes from fort level 3: a beaker imitating a Normandy product (Plate CLXXVI: 57). The beaker type is identified as typical for the Lyons-la-Forêt kilns. Its fabric, however, characterised by a fine matrix with rare large quartz and some mica (Table 65), is not recognised as from Lyons-la-Forêt by Y.-M. Adrian (pers. comm.) (cf. Adrian 2013).

The production of beakers and carinated bowls with a decoration of burnished lines is typical of this particular kiln site (Adrian 2013, 446-447, fig. 15) and is unknown in the repertoire of the other Normandy kiln sites. Only two beaker types, with little chronological evolution, are produced during almost two centuries, disappearing by the middle of the 3rd century. The earlier beakers have a rounded body form, while the later ones became more elongated. The earlier ones also show an upper horizontal burnishing combined with a vertical burnishing on the lower part, while the late examples only show the vertical burnishing. The example from Oudenburg has this horizontal burnishing and a rather bulging profile which would indicate a date to the early 2nd century.



However, its was found in a fort level 3 context and the size of the preserved fragment (almost half of the beaker) contradicts that it would be a residual piece. It is therefore more likely that this beaker represents an intermediate type, already displaying a finer shape but still with the early decoration. Of course, one must bear in mind that the Oudenburg example is an imitation. The presence of these Lyons-la-Forêt type beakers in Romano-British contexts, for instance at the New Fresh Wharf site in London where two individuals were found (Richardson 1986, 123: I.162 and I.163), already pointed to close contacts between the Belgian, British and Normandy coastal regions. Where this Oudenburg imitation has been made, remains so far unknown.

An oddity in the handmade assemblage is a roughly made item used as lid (Plate CLXXVI: 58). It was found in context OS 30916, a level in the earthen rampart attributed to fort level 1. The form can be recognised as a Morini cup (cf. Vidal 2014). By making perforations in the base it was reused here as a lid, confirmed by the soot on the exterior and interior of the rim. A possible second example, a fragment of the base of such a cup, could be identified in the pottery assemblage of the construction pit of well OS 22926 of fort level 4. Cups and platters with straight flaring wall-sides seem to be typical for the Morini region, a continuing tradition according to Augustan to 3rd-century contexts (Vidal 2014). A Menapian origin in the region of the valley of the Deule can also be considered since an example from Villeneuve d'Ascq, from an early Roman context (Clotuche 2004), shows a clear resemblance with the Oudenburg example. However, as the form is also rare for that region, it might as well have been imported from the Morini region. The coarse, rather soft fabric of the Oudenburg cup is grog-tempered and resembles the coarsest fabric variant in the North-Menapian spectrum. Further fabric analysis in comparison to hand specimen of original Morini cups should determine whether it concerns imports or imitations. However, its reuse as lid favours the identification as a casual import for which, once at the Oudenburg fort, the original function may have not been valid anymore. Maybe these cups or their model (in case of imitation) belonged to the personal baggage of a soldier originating from the Morini region? Or were they casual items that came in along with other imports?

### 3.9. Conclusions from the imported greywares from the North of France

Although the grey wares from southern territories in current Northern France could not at all compete with the North-Menapian products (in general only 1.7% of the MNI of the reduced wares of the Roman level), they continued to come in throughout the fort's occupation period. Through time, different pottery productions were in play, giving evidence of changes in the distribution network via the south-north supply axis.

The Bruay-Labuissière products were clearly the most important group of grey wares imported from northern France at the Oudenburg fort (Table 64; Fig. 97). They occur throughout the Roman level and are particularly significant at fort level 4. From fort level 4 onwards, there is clearly a higher degree of imported grey wares from northern France. Before that period, imported grey wares from the *civitates* of the Nervii, the Atrebatas, the Ambiani, the Vellocassi and the Remi seem sporadic chance arrivals. During fort level 1, 2 and 3, it is mainly the Bruay-Labuissière production which arrived at Oudenburg, except for some isolated vessels from other pottery productions. Arras products were blocked by the Bruay imports which were also distributed, probably via Boulogne-sur-Mer, to *Britannia*. A survey through the pottery of the southern mid-Roman graveyard at Oudenburg (site ET14) has shown that until late in the 2nd century the Arras wares were well-represented. The change in the distribution network in favour of Bruay-Labuissière may not only be chronologically explained but may also have been military-influenced. Only at fort period 5, from the 4th century onwards, some Arras vessels again reached the Oudenburg fort. Furthermore, in the late Roman period, the products from La Calotterie and the white kaolinite rich clay products, probably originating from the same region, take over from Bruay.

The products from the *civitates* in question possibly do not (all) imply trade. It is very likely that some were brought in as personal belongings along with soldiers coming from that region and/or as casual items that came along with other trade products which passed the region. The evolution to more imports from northern France from fort level 4 onwards could reflect more intensive

contacts between Roman military bases during this period, and more movement of army units. However, it is important to take into account that the two latest levels cover a much wider time-span than fort levels 1 to 3, which could also partly explain the higher numbers.

From the end of fort level 4 onwards, other North-Gaulish fabrics start to occur in the pottery assemblages. They cannot be identified as North-Menapian and can neither be recognised as coming from the regions discussed here. It is very likely that they originate from the region in-between, namely the south of the *civitas Menapiorum* where the kilns are however not known so far.

	L1	FL2	FL3	FL4	FL5	total
<b>BRU RE</b>	3	9	6	17	4	<b>39</b>
<b>CALO RE</b>			1	5	6	<b>12</b>
<b>CHAM RE</b>		1		1	2	<b>4</b>
<b>CAM RE</b>			x	2	4	<b>6</b>
<b>KAOL RE</b>		x	1	2	11	<b>14</b>
<b>ARR RE</b>					2	<b>2</b>
<b>TOTAL</b>	<b>3</b>	<b>10</b>	<b>8</b>	<b>27</b>	<b>29</b>	<b>77</b>

Table 64: Distribution of grey wares imported from northern France within the Roman level according to the stratified evidence, based on MNI; x: no MNI in the total assemblage, only body fragments in the Roman level.

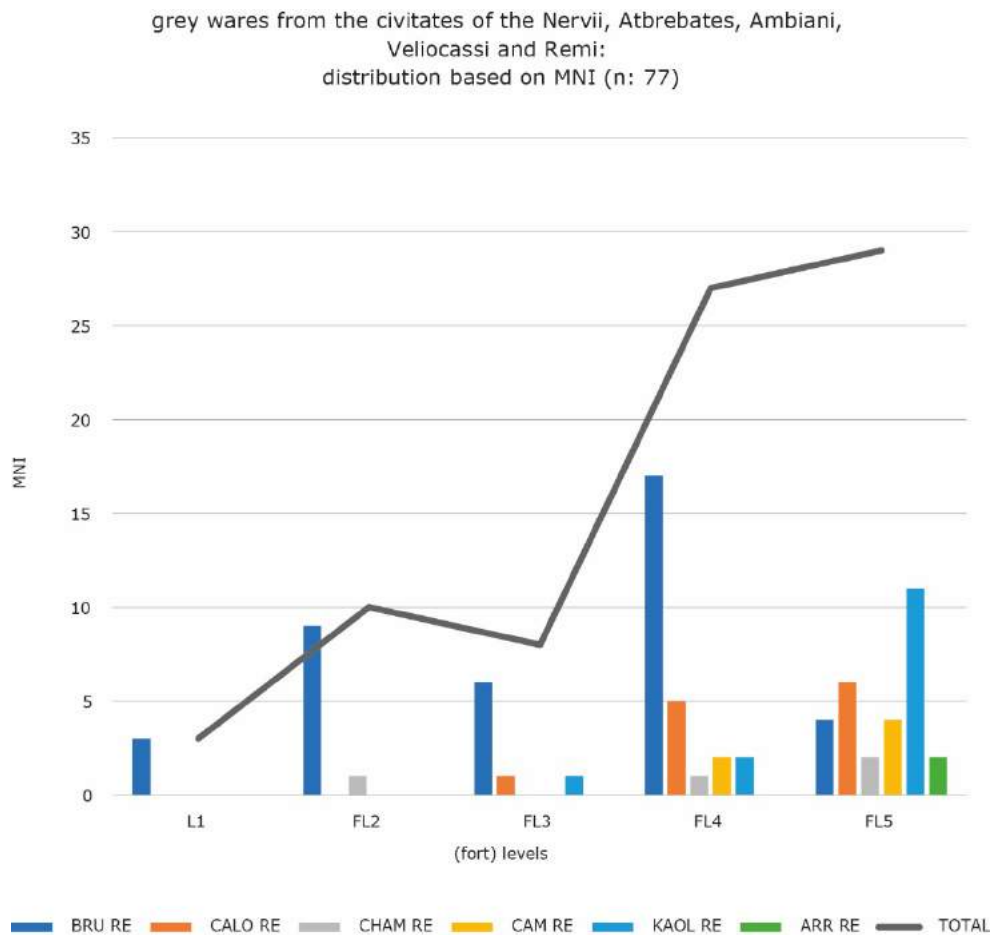


Fig 95: Visualisation of the distribution of the grey wares from northern France in the Roman level, based on MNI.

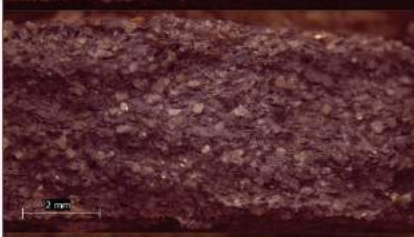


	<b>description</b>		<b>MNI</b>	<b>sherd count</b>
<b>Bruay-Labuissière productions</b>	fine sandy clay with often a reddish core and grey fringes used for beakers		39	169
	more sandy variant used for cooking wares			
<b>La Calotterie productions</b>	kaolinite rich clay with finer inclusions used for late productions and for table wares		12	22
	very sandy irregular fabric with abundant large quartz used for cooking wares			
<b>Late Cambrai productions</b>	fine kaolinite rich clay with silt-sized quartz and flint inclusions		6	11
<b>Champagne region productions</b>	fine kaolinite rich clay fabric with abundant quartz, no flint inclusions		4	5
<b>Kaolinite rich clays</b>	example of a sandy kaolinite rich clay not identified as being La Calotterie		14	28
<b>Lyons-La-Forêt imitation</b>	fine matrix with some larger inclusions, possible mica, grey core with brown fringes		1	4

Table 65: The attested fabrics from grey wares imported from northern France: description and quantification (Photos by S. Willems).

## 4. The Romano-British coarse pottery at the south-west corner site (*By M. Lyne and S. Vanhoutte*)

### 4.1. Introduction to the assemblage

The excavations at the south-west corner site of the Oudenburg fort yielded in total 250 sherds (6954 g.) of pottery from Romano-British coarseware vessels, accounting for at least 99 individuals. Most of the Romano-British fragments come from fort levels 4 and 5 contexts or are residual in post-Roman ones. There are none from fort levels 1 or 2 contexts.

The Romano-British products only represent a minor share of the pottery assemblages at the site. Based on number of fragments, the Romano-British wheel-turned sherds only account for 0.15% of the total reduced wares, the Romano-British handmade fragments represent a similar share with 0.22% of the total handmade assemblage of the site. In terms of MNI, the percentages are not much higher: respectively the Romano-British wheel-turned vessels account for 0.38%, the handmade ones for 0.90% (Table 66).

number of sherds	reduced wares	Romano-British	%	handmade wares	Romano-British	%	TOTAL Romano-British
<b>L1</b>	257	0	0,00	698	0	0,00	0
<b>FL2</b>	1574	0	0,00	1899	0	0,00	0
<b>FL3</b>	6419	2	0,03	6956	4	0,06	6
<b>FL4</b>	14222	22	0,15	22799	59	0,26	81
<b>FL5</b>	8032	21	0,26	8597	26	0,30	47
<b>TOTAL ROMAN LEVEL</b>	<b>30504</b>	<b>45</b>	<b>0,15</b>	<b>40949</b>	<b>89</b>	<b>0,22</b>	134
<b>5+POST / POST</b>	15658	58	0,37	9269	58	0,63	116
<b>TOTAL</b>	<b>46162</b>	<b>103</b>	<b>0,22</b>	<b>50218</b>	<b>147</b>	<b>0,29</b>	<b>250</b>

number of individuals	reduced wares	Romano-British	%	handmade wares	Romano-British	%	TOTAL Romano-British
<b>L1</b>	43	0	0,00	88	0	0,00	0
<b>FL2</b>	212	0	0,00	221	0	0,00	0
<b>FL3</b>	867	2	0,23	610	2	0,33	4
<b>FL4</b>	1959	4	0,20	2024	21	1,04	25
<b>FL5</b>	1439	11	0,76	964	12	1,24	23
<b>TOTAL ROMAN LEVEL</b>	<b>4520</b>	<b>17</b>	<b>0,38</b>	<b>3907</b>	<b>35</b>	<b>0,90</b>	52
<b>5+POST / POST</b>	3182	25	0,79	1193	26	2,18	51
<b>TOTAL</b>	<b>7702</b>	<b>42</b>	<b>0,55</b>	<b>5100</b>	<b>61</b>	<b>1,20</b>	<b>103</b>

Table 66: Proportion of Romano-British reduced wares within the total amount of reduced wares and of Romano-British handmade wares within the total amount of handmade pottery at the south-west corner site, based on number of sherds and on MNI.

Attested Romano-British fabrics are: the handmade Black-Burnished Ware 1 (BB1), the wheel-turned Black-Burnished Ware 2 (BB2), a silty variant of BB2 (BBS), East-Anglian Greyware (EAG), Alice Holt/Farnham Greyware (AHFA), Hampshire Grog-Tempered Ware (HGTW) and possibly also Hadham Greyware (HADG) and Thameside Kent Greyware (TSK). Diagnostic pottery fragments are listed in the catalogue (Section 4.4) and are illustrated on Plates CLXIX-CLXXI.



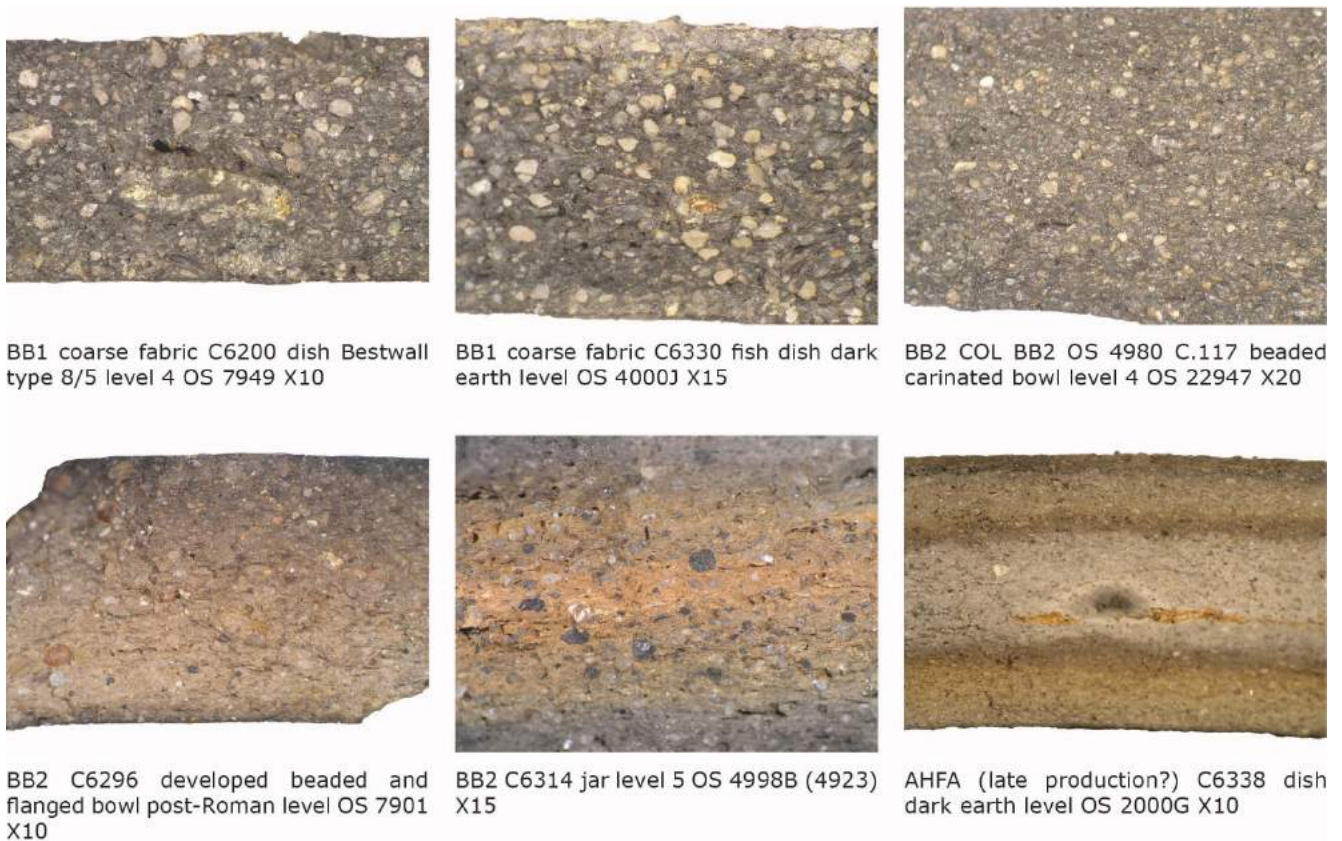


Fig 96: A selection of attested Romano-British coarse pottery fabrics at the south-west corner site (Photos by the author).

## 4.2. Distribution and chronology in relation to the stratified evidence

### 4.2.1. Fort level 3

There are only six Romano-British sherds which can be associated with contexts from fort level 3; two of them derive from level 4+5 but crossfit with a find from level 3 (R-B no. 1)<sup>125</sup>, resulting in four individuals in total. Two of these individuals are in Dorset BB1 fabric of which the complete profile of a dish of Bestwall type 8/5 can be dated c. AD 220 and 290/300 (Lyne 2012) (R-B no. 1). The other fragment of this dish type, a base sherd (not ill.), was found in a closed context, in the central fill layers of pit OS 80925. The homogeneous fillings indicate a rapid, complete infill after the pit lost its function. Whether this infill occurred during fort period 3 or at the end of it cannot be deduced based on the stratified evidence. Nevertheless, this OS 80925 fragment proves that the first Romano-British coarse imports, although very scarcely, did definitely come in during fort period 3. The third individual is represented by a lid fragment of Alice Holt/Farnham greyware, type 7.12 (Lyne and Jefferies 1979), and dated to c. AD 200-270 (R-B no. 2). The fourth individual represents a straight-sided dish of unknown but probable British origin (R-B no. 3).

One other fragment is less well stratified and belongs to fort level 3 or 4. It shows a developed beaded-and-flanged bowl in BB1 fabric of Bestwall type 6/4 with burnished external arcading (Lyne 2012) (R-B no. 4). This type dates to the period c. AD 240-290/300.

### 4.2.2. Fort level 4

This level yielded 81 fragments of coarse pottery from British sources, representing 25 individuals (Table 66) (included are the fragments from a 3+4 level). The predominant fabric is Dorset BB1

<sup>125</sup> The listed numbers refer to the catalogue (see Section 4.4) and the accompanying drawings on Plates CLXIX-CLXXI.

which makes up 60.4% of the Romano-British pottery by EVE (72.8% by sherd count) (Table 67). The small number of Romano-British sherds from this fort level makes such percentages slightly suspect but there is no doubt that at the time the BB1 kilns around Poole Harbour in Dorset were by far the biggest supplier of coarse Romano-British pottery to Oudenburg.

FL 4: EVE's	Jars EVE	Bowls EVE	Dishes EVE	Others EVE	Total EVE	%	Sherd count
BB1	0.30	0.35	1.88		2.53	60.4	59
BB2		0.25	0.07		0.32	7.6	5
BBS					P		1
EAG		1.34			1.34	32.0	12
AHFA	P				P		3
HADG					P		1
<b>TOTAL</b>	<b>0.30</b>	<b>1.94</b>	<b>1.95</b>		<b>4.19</b>		<b>81</b>

Table 67: The Romano-British coarse pottery from fort level 4 at the south-west corner site: fabrics versus forms, based on EVEs and with the total sherd count.

The BB1 fragments represent Bestwall beaded-and-flanged bowl types 6/4 (c. AD 240-290/300) and 6/5 (c. AD 280-300), two each of types 6/6 (c. AD 290/300-370) and 6/8 (c. AD 270/300-370), up to ten examples of the straight-sided dish type 8/5 (c. AD 220-290/300) and three of type 8/12 (c. AD 290/300-370). Fragments from everted-rim cooking pots of Bestwall Class 1 with obtuse-lattice decorated girth bands are also present (c. AD 220-370) but the absence of complete profiles makes their exact types uncertain. All of these vessels could be made to fit within the period c. AD 270-300 but it may be possible to date their arrival even more precisely, in that there is an absence of BB1 incipient-beaded and flanged bowls of type 6/2 from the site. These are dated c. AD 210-280/90 and their absence from Oudenburg suggests that BB1 pots of this level all arrived on site during the narrower time-slot c. AD 280/90-300.

Three complete profiles of BB1 dishes of Bestwall type 8/5 decorated with flattened arcading on the sides and scrolling on the underside (c. AD 220-290/300) come from the primary fill of the large waste-pit OS 4980 (see also Vanhoutte *et al.* 2009c, 131) (R-B nos. 5-7). Complete profiles of this dish type were also found in pit OS 7949 of Unit I (R-B no. 8), the large fire layer of the end of fort level 4 (R-B no. 9) and the cellar pit OS 8973 of Unit VIII (R-B no. 10). Illustrated are also two undecorated BB1 dishes of Bestwall type 8/12 polished internally and externally (R-B nos. 11 and 12).



Fig 97: BB1 dish of Bestwall type 8/5 from the large waste-pit OS 4980 of fort level 4 (R-B no. 5).



The second most important Romano-British fabric at this fort level, however in counts far behind the BB1 group, is a fine wheel-turned grey one with <0.10 mm multi coloured quartz-sand filler and occasional larger white calcareous and brown ferrous inclusions. This probably has an East Anglian origin and is represented by two beaded-and-flanged bowls. One of these (R-B no. 13) has 75% of its rim surviving, the other (R-B no. 14) 59%. The presence of the greater parts of these two bowls has led to an exaggeration of the significance of these wares in the EVEs percentages.

Minority wares at fort level 4 include a fragment in Much Hadham Grey ware (R-B no. 15) and a carinated bowl in silty fine black Colchester BB2 variant with external burnished latticing (R-B no. 16).

#### 4.2.3. Fort level 5 and 5+

Numbers of Romano-British sherds from fort levels 5 and 5+ (the transition level 5+post) are somewhat down on those from fort level 4 but the assemblage was still quantified by EVEs and numbers of sherds per fabric as it suggests changes in the sources of such pottery (see Table 68)<sup>126</sup>. Twenty-three MNI were recovered from fort level 5, fourteen MNI from the 5+post level.

The pottery assemblage from fort levels 5/5+ differs from the earlier one in having high numbers of both BB1 and Alice Holt/Farnham greyware sherds, both representing twelve MNI<sup>127</sup>, making up a total of 83.2% of the assemblage by sherd count and 84.5% by EVEs (Table 68).

FL 5/5+: EVE's	Jars EVE	Bowls EVE	Dishes EVE	Others EVE	Total EVE	%	Sherd count
BB1	0.33	0.18	0.61	0.35	1.47	48.4	25
BB2		0.05	0.22		0.27	8.9	4
AHFA	0.24	0.82			1.06	34.8	24
AHFA2					P		1
HGTW			0.03		0.03	1.0	1
TSK	0.05	0.11	0.05		0.21	6.9	3
<b>TOTAL</b>	<b>0.62</b>	<b>1.16</b>	<b>0.91</b>	<b>0.35</b>	<b>3.04</b>		<b>58</b>

Table 68: The Romano-British coarse pottery from fort level 5 and level 5+post at the south-west corner site: fabrics versus forms, based on EVEs and with the total sherd count.

The BB1 wares (twelve MNI) include fragments from beaded-and-flanged bowl types 6/5 (one MNI; c. AD 280-300) and 6/6 (one MNI; c. AD 290/300-370), two examples each of dish types 8/5 and 8/9 (c. AD 220-290/300 and 290-330 respectively) and three of type 8/12 (c. AD 290/300-350/70) (illustrated vessels: 18-20). An everted rim-jar of uncertain Bestwall type in coarse black BB1 fabric (R-B no. 17) has a heavily-beaded rim suggesting a c. AD 330/40-420 date. A base fragment of a BB1 dish shows an internal Redcliff motif and scrolling on the underside (R-B no. 20). It can be dated c. AD 290-350. No parallels have been found for the small bead-rim vessel of unknown type in very fine BB1 variant (R-B no. 21). It cannot be excluded that this is not a British product at all but in a fabric similar to BB1.

BB1 vessels are usually handmade but the straight-sided dish of Bestwall type 8/12 (R-B no. 19) appears to be wheel-turned. Such wheel-turned BB1 vessels are not unknown; there is for example a c. AD 290-350 dated wheel-turned dish from the Shipphams Social Club site in Chichester (Lyne *forthcoming*).

Some of this material may well be residual from the previous level but other vessels, such as the examples of bowl type 6/6 and dishes of types 8/9 and 8/12, were most likely deposited during fort period 5. There are no fragments from post AD 370 BB1 types.

<sup>126</sup> In Table 68 the sherds from mixed levels 2 to 5 and from mixed level 4+5 are not included.

<sup>127</sup> Six of the AHFA individuals were recovered from the transition level 5+post (5+), thus explaining the difference in numbers with Table 66.

The increased presence of Alice Holt/Farnham greywares (with twelve MNI) in comparison to the earlier fort level includes fragments from Lyne and Jefferies (1979) beaded-and-flanged bowl forms 5B, in most cases more specified: type 5B.4 (one MNI; c. AD 270-350) (R-B no. 24), 5B.5 (one MNI; c. AD 270-420) (R-B no. 25), 5B.6 (one MNI; c. AD 270-420) (R-B no. 26) and 5B.8 (four MNI; c. AD 270-420) (R-B nos. 27-29). The assemblage also comprises two everted-rim cooking pots of Class 3B.10 (c. AD 270-420) (R-B nos. 22-23).

A minority of the vessels displays the BB2 fabric. In Kent BB2 fabric a beaded-and-flanged bowl was made (c. AD 240-350) (R-B no. 30). A straight-sided dish, polished black, shows a very fine brown-black BB2 fabric (c. AD 200-350) (R-B no. 31). Another dish was produced at Colchester as its very fine polished black Colchester BB2 fabric indicates (c. AD 200-350) (R-B no. 32). The type is paralleled at Colchester (Symonds and Wade 1999, Fig. 6.41, 48).

This assemblage contains furthermore two rarities. The fragment of a rough-surfaced hook-rim jar is probably a late Thameside greyware variant of Pollard's type 197 (1988) and can be dated c. AD 300-370 (R-B no. 33). A handmade straight-sided dish of Lyne type 6A.22 (2015) can be identified as Hampshire Grog-Tempered Ware and dates c. AD 270-370/400+ (R-B no. 34).

#### 4.2.4. Residual in post-Roman contexts

In total 116 residual Romano-British sherds come from post-Roman contexts<sup>128</sup> and include rim fragments adding up to a total EVE of 4.00. They represent 35 MNI (this is when the fourteen MNI of the 5+post level are excluded). Of this EVE, BB1 accounts for 49%, BB2 for 26%, Alice Holt/Farnham greywares for 21% and miscellaneous greywares for the rest. Both 3rd- and 4th-century material is present and includes the following forms and form variants not present in the Roman level contexts:

- An abraded beaded-and-flanged dish fragment of Bestwall type 7/3 in finish BB1 fabric, c. AD 300-400+ (R-B no. 35).
- A dish of Bestwall type 8/9 in black BB1 fabric with internal Redcliff motif and scrolling on underside, c. AD 290-330 (R-B no. 36).
- An oval 'fish dish' of Bestwall type 9/1 in black BB1 fabric with internal burnished 'diabolo' motif, c. AD 300-400+ (R-B no. 37) (Fig. 100).



Fig 100: Part of BB1 oval 'fish dish' of Bestwall type 9/1, recovered from the dark earth level (R-B no. 37) (Photo by K. Vandevorst (Flanders Heritage Agency)).

<sup>128</sup> Not included are the sherds from the mixed level 5+post.

- A lid in very-fine ?BB1 fabric with traces of burnished decoration on upper surface, c. AD 300-400 (R-B no. 38).
- A beaded-and-flanged bowl of Lyne and Jefferies type 5B.8 in Alice Holt/Farnham greyware with internal black slip extending over the flange and external burnished arcading. The external burnished arcading is unusual and clearly copying that on similar BB1 beaded-and-flanged bowls; this in turn suggests a date early on in the long date-range of type 5B.8 as the BB1 industry abandoned such decoration c. AD 300. Therefore this example can be dated c. AD 270-300+ (R-B no. 39).
- A convex-sided type 6A.9 dish variant in Alice Holt/Farnham greyware with internal burnished decoration, c. AD 350-400+ (R-B no. 40).
- A straight-sided dish in very-coarse Alice Holt/Farnham greyware variant similar to wares produced at the Farnham Six Bells kiln site (Lowther 1955) and marketed in the London area with the more normal finer products, c. AD 300-400 (R-B no. 41).
- A beaded-and-flanged bowl in BB2 variant with profuse iron-stained quartz-sand filler, c. AD 300-350 (R-B no. 42).
- Three beaded-and-flanged bowls in very-fine-sanded BB2 fabric fired orange-brown with smooth black surfaces, c. AD 270-350 (R-B nos. 44-45).



Fig 98: Everted-rim BB1 cooking pot of Bestwall Class 1 (with top of decoration), recovered from the dark earth level (similar to R-B no. 17) (Photo by K. Vandevorst (Flanders Heritage Agency)).



Fig 99: Beaded-and-flanged bowl in very-fine-sanded BB2 fabric fired orange-brown with smooth black surfaces, recovered from the dark earth level (R-B no. 44) (Photo by K. Vandevorst (Flanders Heritage Agency)).

#### 4.3. Conclusions: Romano-British coarse pottery at the Oudenburg fort and its wider significance

The first Romano-British coarse pottery came in during fort period 3, around the middle of the 3rd century, however very scarcely. More Romano-British coarse vessels occur from fort period 4 onwards, and – as can be deduced by including the fragments recovered as residual items in the post-Roman level – their number increased in the 4th century (Table 69; Fig. 100). The Romano-British pottery sherds only form a tiny fraction of the total number of common reduced wares at Oudenburg though (Table 66). Although both the handmade and the wheel-turned grey wares were important at all fort levels, there was apparently not much need to get supplies of coarse pottery

from *Britannia*. Both the handmade and wheel-turned reduced pottery are dominated by the local/regional North-Menapian products (Section 1 of this Appendix). Forms and decorations do point to mutual influences between the North-Menapian and the Romano-British coarse ware potteries. The decorative burnishing patterns common on the 3rd-century North-Menapian ceramic vessels for sure are influenced by the Romano-British Black-Burnished wares, and maybe also the other way around (cf. this Appendix 21, Section 1.5). Apart from their significance for the interpretation of the cross-Channel connections, the dating ranges of the Romano-British coarse pottery are an important chronological contribution for the Oudenburg fort (cf. Fig. 101).

The BB1 imports are most significant at the Oudenburg fort. Most BB1 products appear in Gaul from the last quarter of the 3rd century onwards, with a post AD 280 date suggested by the absence of Bestwall incipient-beaded-and-flanged bowl type 6/2 on all sites other than Boulogne. Study by Lyne (unpublished) has concluded that amounts of c. AD 280-300 dated BB1 are quite small and largely restricted to sites in the lower Seine valley and on the high ground between Rouen and Dieppe in the final occupation levels at Totes, Grigneusville and Le Haussaye Beranger prior to an almost total cessation of human activity in the area. A similar phenomenon is encountered in coastal areas of south-east Britain, where a significant number of villas and other sites cease to be occupied in the last years of the 3rd century and have a little BB1 associated with the final occupation.

BB1 pottery appears somewhat earlier, during the mid-3rd century, at Boulogne and on coastal sites to the east: Boulogne has produced examples of bowl type 6/2 (c. AD 210-280/90) and dish type 8/2 (c. AD 200-270). The two BB1 sherds from fort level 3 at Oudenburg indicate that a few pots were also appearing at the Oudenburg fort as early as the mid-3rd century, as was also the case at Voorburg (*Forum Hadriani*) in the Netherlands. This latter site was abandoned around AD 300-310 but has fragments of at least two dishes Holbrook and Bidwell (1991) (Dorset) type 56 or 59 from the fills of the silted up harbour (Van Kerckhove 2014, 328).

MNI	FL 3	FL 4	FL 5	5+POST / POST	TOTAL
<b>BB1</b>	2	21	12	25	60
<b>BB2</b>	0	1	4	9	14
<b>AHFA</b>	1	0	5	12	18
<b>AHFA2</b>	0	0	1	2	3
<b>HADG</b>	0	1	0	0	1
<b>EAG</b>	1	2	1	1	5
<b>HGTW</b>	0	0	0	1	1
<b>TSK</b>	0	0	0	1	1
<b>TOTAL</b>	<b>4</b>	<b>25</b>	<b>23</b>	<b>51</b>	103

Table 69: Distribution of the Romano-British coarse production according to the stratified evidence, based on MNI.

distribution of the Romano-British fabrics based on MNI (n: 103)

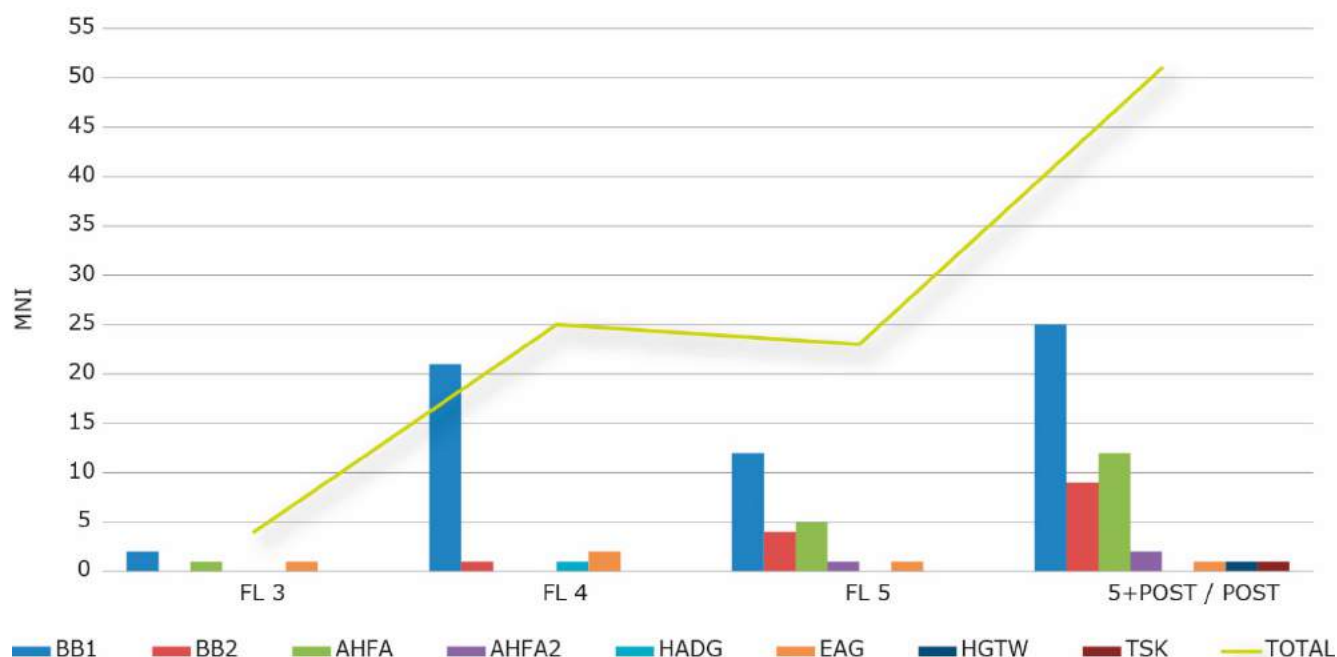


Fig 100: Visualisation of the distribution of Romano-British coarse production according to the stratified evidence, based on MNI.

A decline in the supply of BB1 to sites in the south-east of Britain after AD 300 is not reflected in northern Gaul, where significant quantities of such wares began to arrive in such volumes as to indicate organised trade in BB1 pottery to Normandy and Brittany. A large 4th-century pottery assemblage from Bayeux has BB1 making up 15 to 20% of all the pottery present and includes rim sherds from at least 300 vessels (Delacampagne and Dufournier 1993, 40). Lillebonne near Le Havre has another 4th-century pottery assemblage with 46% BB1 (Adrian 2006, Tabl. 19) and there seems to have been regular, but more limited, supply to Rouen throughout the 4th century. Minute quantities of BB1 were traded further up the river Seine to Paris and beyond with a clear trade route indicated by a trail of a few pots up the river Yonne at least as far as Pont du Yonne (Barat *et al.* 2011). There are too few pots from Paris and further upstream for them to be the main cargo being traded and one suspects that they were being carried with much larger volumes of grain, salt or some other perishable commodity from the *civitas* of the Durotriges in *Britannia*.

This also applies to the small quantities of BB1 arriving at Oudenburg during the period AD 280-370; these vessels may also represent a small subsidiary element in mixed cargoes. Several industries based around Poole Harbour in the *civitas* of the Durotriges have left archaeological evidence, including stone quarrying, salt production, BB1 pottery manufacture and Kimmeridge shale working (Sunter and Woodward 1987). These industries appear to have been closely related, in that oil-shale waste was used to fire the pottery kilns at Worgret (Hearne 1991) and specialised 'Fitzworth' troughs made by BB1 potters were used to boil brine (Farrar 1975).

There appears to be a change in the pattern of Romano-British pottery supply during fort periods 4 and 5 at Oudenburg in that Alice Holt/Farnham greywares become more significant during fort period 5 (cf. Tables 68-69; Fig. 100). Although Romano-British sherd quantities are quite small, this may reflect reality in that excavations at the Pevensey and other Shore forts in Britain also display this phenomenon to a greater or lesser degree. The pottery assemblage from a c. AD 300-350 dated context at Pevensey has BB1 accounting for 58% of the coarse pottery and Alice Holt/Farnham greywares for a mere 2%. A later c. AD 370-400+ dated assemblage has 1% residual BB1 and 32% largely contemporary Alice Holt/Farnham greyware (Lyne 2009, Tabl. 55 and 59 adjusted for coarsewares only).



Romano - British coarse pottery from fort level 5, level 5+post and post - Roman level: dating ranges

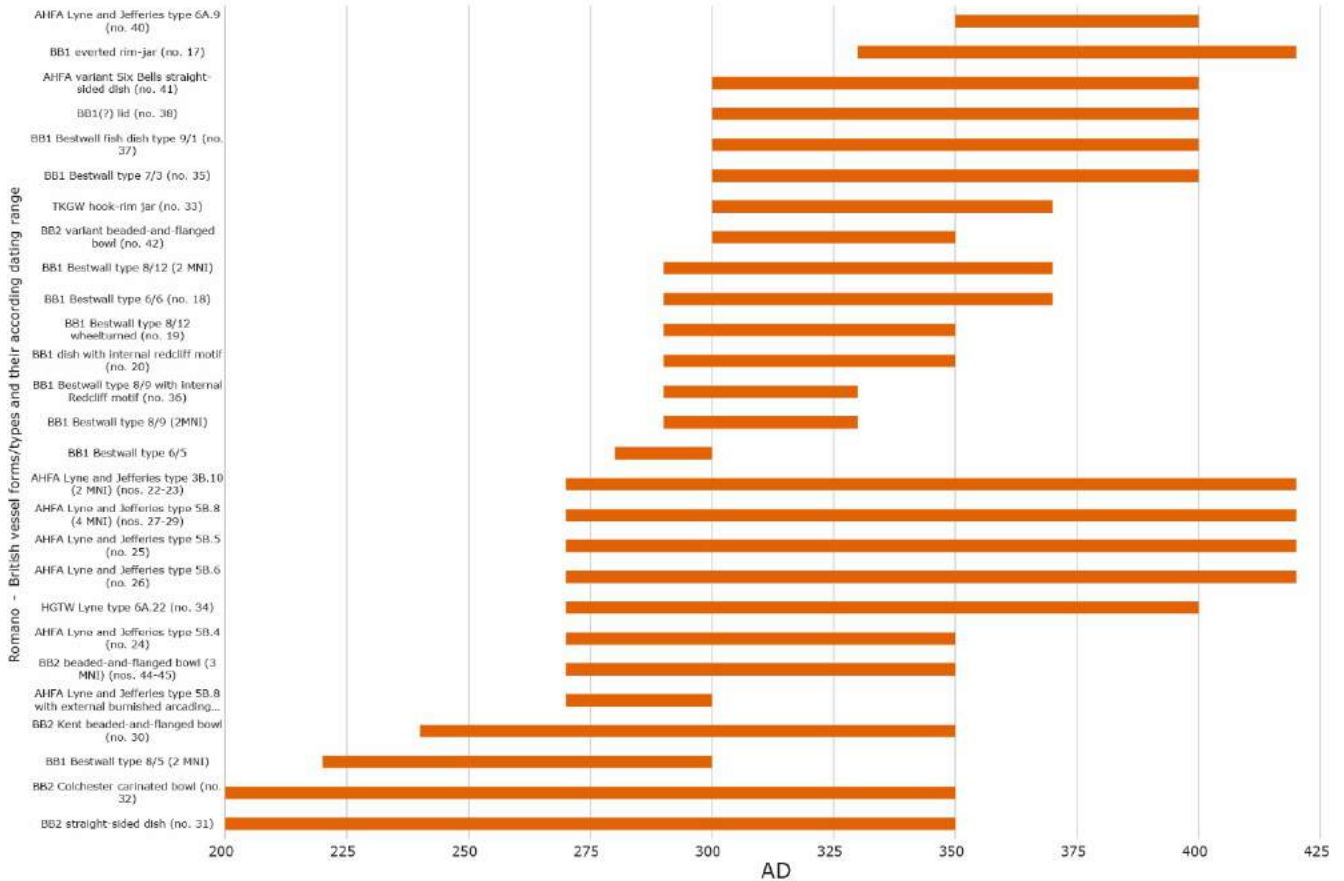


Fig 101: Dating ranges of the attested, 'closely' datable Romano-British coarse pottery types at the south-west corner site.

Noteworthy is the almost complete *olla* Hollevoet (2004, 338-339) drew attention to (Fig. 102). The pot, handmade with wheel-turned rim, of type Gillam (1968) 157, was found during the excavation campaign in 1977 in the northern sector of the Oudenburg fort. The form and the hard fabric tempered with crushed fossil shells is characteristic for the Dales wares which were produced at Lincolnshire and in the adjacent part of Humberside (UK). The type dates to AD 250-340 (Tyers 1996b, 190). The Dales wares were mainly distributed around the different production centres and to the north. Only a few vessels were found along the British coast, namely at the Shore forts of Caistor-by-Sea and of Richborough (Hollevoet 2004, 339, with references). The Oudenburg vessel clearly was not a trade product; it probably came in with its owner or was the result of gift exchange. It was found in Trench II while uncovering the north-south *cardo* of fort period 4. Although the exact context has not been registered, based on the features uncovered at the level from which the vessel has been excavated it is likely that this pot can be attributed to fort level 4. It definitely emphasises the close relation between the Oudenburg unit and the units at the British shore forts from the late 3rd century onwards.





Fig 102: The Dales ware pot of type Gillam (1968) 157 found in 1977 in the northern sector of the Oudenburg fort (Photo by Y. Mans).

#### 4.4. Catalogue of the Romano-British coarse pottery at the south-west corner site (By M. Lyne).

##### Fort level 3

1. Complete profile of a BB1 dish of Bestwall type 8/5. White-slipped (except for the upperside of the base). Context OS 70907, level 3. Another base sherd of the same type (not illustrated) was found in pit OS 80925.
2. Lid fragment of Alice Holt/Farnham greyware type 7.12, fired polished black. Exterior rim diameter 190 mm. Context level OS 70910.
3. Straight-sided dish of unknown but probable British origin, fired black with a pimply goose-flesh finish. Context level OS 70909.

##### Fort level 3 or 4

4. Developed beaded-and-flanged bowl in BB1 fabric, of Bestwall type 6/4 with burnished external arcading. Exterior rim diameter 170 mm. Context level OS 1905.

##### Fort level 4

5. Complete profile of BB1 dish of Bestwall type 8/5 decorated with flattened arcading on the sides and scrolling on the underside. Exterior rim diameter 200 mm. Context primary fill of the large waste-pit OS 4980.
6. Complete profile of BB1 dish of Bestwall type 8/5 decorated with flattened arcading on the sides and scrolling on the underside. Exterior rim diameter 190 mm. Context primary fill of the large waste-pit OS 4980.

7. Complete profile of BB1 dish of Bestwall type 8/5 decorated with flattened arcading on the sides and scrolling on the underside. Exterior rim diameter 170 mm. Context primary fill of the large waste-pit OS 4980.
8. Complete profile of BB1 dish of Bestwall type 8/5 decorated with flattened arcading on the sides and scrolling on the underside. Exterior rim diameter 190 mm. Context pit OS 7949 Unit I.
9. Complete profile of BB1 dish of Bestwall type 8/5 decorated with flattened arcading on the sides. Exterior rim diameter 320 mm. Context layer OS 70006, part of large fire layer, end fort level 4.
10. Complete profile of BB1 dish of Bestwall type 8/5 decorated with flattened arcading on the sides and scrolling on the underside. Exterior rim diameter 250 mm. Context cellar pit OS 8973, cross-fit with level OS 8959.
11. Undecorated BB1 dish of Bestwall type 8/12 polished internally and externally. Exterior rim diameter 170 mm. Context level OS 7937.
12. Undecorated BB1 dish of Bestwall type 8/12 polished internally and externally. Exterior rim diameter: 200 mm. Context primary fill of the large waste-pit OS 4980.
13. Beaded-and-flanged bowl in wheel-turned grey fabric, probably of East Anglian origin. Exterior rim diameter 180 mm. Context level OS 80963/80942.
14. Beaded-and-flanged bowl in wheel-turned grey fabric, probably of East Anglian origin. Exterior rim diameter 180 mm. Context large fire layer OS 7965 demarcating the end of fort level 4.
15. ?Bowl sherd in Much Hadham Grey ware with a rivet hole from a repair. Context layer OS 1117.
16. Carinated bowl (Drag. 30 copy) in silty fine black Colchester BB2 variant with external burnished latticing. Exterior rim diameter 220 mm. Non-fitting wall sherd, but likely to be from the same individual. The rim sherds come from the primary fill of the large waste-pit OS 4980 (see also Vanhoutte *et al.* 2009c, 124 and Fig. 23); the non-fitting wall sherd was found in level OS 22947.

#### *Fort level 5 and level 5+*

17. Everted-rim jar of uncertain Bestwall type in coarse black BB1 fabric. Exterior rim diameter 140 mm. Context OS 8670, fill of construction slot.
18. Beaded-and-flanged bowl of Bestwall type 6/6 with untidy external burnished arcading, in coarse black BB1 fabric. Exterior rim diameter 150 mm. Context primary fill of large basin OS 4923.
19. Straight-sided dish of Bestwall type 8/12 in coarse black BB1 fabric. Exterior rim diameter 270 mm. Cross-fit between sherds coming from contexts pit OS 10908/8924A, OS 4923-secondary fill large basin and level 8920.
20. Fragment from base of BB1 dish with internal Redcliff motif and scrolling on underside. Context level OS 8914.
21. Small bead-rim vessel of unknown type in very fine BB1 variant. Exterior rim diameter 35 mm. Context fill of construction slot OS 8670.
22. Everted jar rim of ?Lyne and Jefferies type 3B.10 with black slip, in Alice Holt/Farnham greyware. Exterior rim diameter 160 mm. Context level OS 8907 of fort level 5 or later date.
23. Cavetto-rim jar of Lyne and Jefferies type 3B.10 with similar slip, in Alice Holt/Farnham greyware. Exterior rim diameter 170 mm. Context level OS 8905A.
24. Beaded-and-flanged bowl of Lyne and Jefferies type 5B.4 with internal white slip extending over flange, in Alice Holt/Farnham greyware. Exterior rim diameter 230 mm. Context level OS 8905A.
25. Beaded-and-flanged bowl of Lyne and Jefferies type 5B.5 with internal black slip, in Alice Holt/Farnham greyware. Exterior rim diameter 180 mm. Context OS 22920, fill of construction pit of double well (Vanhoutte *et al.* 2009c, Fig.17,1). A rim fragment of another or the same 5B.5 bowl came from road level OS 8937 of the same fort level 5A (not illustrated).
26. Beaded-and-flanged bowl of Lyne and Jefferies type 5B.6 with similar internal slip extending over the flange, in Alice Holt/Farnham greyware. Exterior rim diameter 160 mm. Context OS 10908/8924A, subsidence on top of pit level 4.

27. Beaded-and-flanged bowl of Lyne and Jefferies type 5B.8, in Alice Holt/Farnham greyware. Exterior rim diameter 220 mm. Context level OS 8902. Fort level 5 or later date.
28. Beaded-and-flanged bowl of Lyne and Jefferies type 5B.8 with internal black slip, in Alice Holt/Farnham greyware. Exterior rim diameter 180 mm. Context OS 10908/8924A, subsidence on top of pit level 4.
29. Beaded-and-flanged bowl of Lyne and Jefferies type 5B.8 with internal black slip and horizontal burnished bands on exterior, in Alice Holt/Farnham greyware. Exterior rim diameter 210 mm. Context level OS 8907. Fort level 5 or later date.
30. Beaded-and-flanged bowl in Kent BB2 fabric. Exterior rim diameter 230 mm. Context level OS 8914.
31. Straight-sided dish in very fine brown-black BB2 fabric fired polished black. Exterior rim diameter 250 mm. Context level OS 8907. Fort level 5 or later date.
32. Dish in very fine polished black Colchester BB2 fabric. Exterior rim diameter 250 mm. Context level OS 8907. Fort level 5 or later date.
33. Fragment from a rough-surfaced hook-rim jar fired black with profuse <0.30 mm quartz-sand filler and sparse coarser brown ferrous and white calcareous inclusions. Probably a late Thameside greyware variant of Pollard's type 197 (1988). Exterior rim diameter 200 mm. Context level OS 8907. Fort level 5 or later date.
34. Handmade straight-sided dish of Lyne type 6A.22 (2015) in Hampshire Grog-Tempered Ware, fired black with profuse orange and white crushed-grog filler. Exterior rim diameter uncertain. Cross joining sherds from context levels OS 8902 and OS 4960. Fort level 5 or later.

#### *Residual in post-Roman level*

35. Abraded beaded-and-flanged dish fragment of Bestwall type 7/3 in finish BB1 fabric. Exterior rim diameter indeterminate. Context level OS 7950A, dark earth.
36. Dish of Bestwall type 8/9 in black BB1 fabric with internal Redcliff motif and scrolling on underside. Exterior rim diameter 200 mm. Context level OS 4000P, dark earth.
37. Oval 'fish dish' of Bestwall type 9/1 in black BB1 fabric with internal burnished 'diabolo' motif. c. AD 300-400+. Context level OS 4000J, dark earth.
38. Lid in very-fine ?BB1 fabric with traces of burnished decoration on upper surface. Exterior rim diameter 210 mm. Context level OS 4002, dark earth.
39. Beaded-and-flanged bowl of Lyne and Jefferies type 5B.8 in Alice Holt/Farnham greyware with internal black slip extending over the flange and external burnished arcading. Exterior rim diameter 220 mm. Context level OS 4000L, dark earth.
40. Convex-sided type 6A.9 dish variant in Alice Holt/Farnham greyware with internal burnished decoration. Exterior rim diameter 230 mm. Cross joining sherds from contexts level OS 2000G/4000J, dark earth.
41. Straight-sided dish in very-coarse Alice Holt/Farnham greyware variant similar to wares produced at the Farnham Six Bells kiln site (Lowther 1955). Exterior rim diameter 250 mm. Context level OS 7000E, dark earth.
42. Beaded-and-flanged bowl in BB2 variant with profuse iron-stained quartz-sand filler. Exterior rim diameter 195 mm. Context level OS 8903/8913, dark earth.
43. Beaded-and-flanged bowl in very-fine-sanded BB2 fabric fired orange-brown with smooth black surfaces. Exterior rim diameter 160 mm. Context OS 4923-secondary fill of large basin.
44. Beaded-and-flanged bowl in very-fine-sanded BB2 fabric fired orange-brown with smooth black surfaces. Exterior rim diameter 220 mm. Context level OS 7901, dark earth.
45. Beaded-and-flanged bowl in very-fine-sanded BB2 fabric fired orange-brown with smooth black surfaces. Exterior rim diameter 210 mm. Context level OS 2000G, dark earth.

## 5. Late Roman handmade wares in Germanic tradition

Handmade wares in Germanic tradition make their earliest appearance at the south-west corner site in the final waste fillings of well OS 22926. Here, three body fragments can be related to

Germanic pottery traditions<sup>129</sup>. Two of them have a fabric characterised by an abundance of coarse angular-shaped flint inclusions. This fabric can be identified as fabric group A defined by De Paepe and Van Impe (1991) who studied late Roman (4th-century) handmade pottery in Germanic tradition from Belgium, the Netherlands and Germany. According to De Paepe and Van Impe, it is likely that 'boulder clay' from the North of Germany or the Netherlands was used (De Paepe and Van Impe 1991, 155-159, 170). Handmade pottery from Zele-Kamershoek, to the east of Ghent and situated in the Scheldt Valley, dated to the late 3rd century – early 4th century, also displayed fabrics rich in flint inclusions. The pottery from Zele could be identified as Frisian pottery (De Clercq and Taayke 2004; De Clercq *et al.* 2005, 209-216). Another body fragment of the waste fillings of OS 22926 can be identified as fabric group B of De Paepe and Van Impe. This pottery is defined by the abundance of large-sized, angular, white stone inclusions in the fabric which may refer to the Eifel region, the Netherlands or the south of Belgium (De Paepe and Van Impe 1991, 159, 167). To fort level 4, also seven grass-tempered ware fragments can be related. Two of them were recovered from 'closed' contexts: one from the pit cutting the western curving construction slot of Unit II, another from the fire and demolition layer on top of Unit II.

In features of fort level 5, more handmade fragments in Germanic tradition occur, mainly in grass-/chaff-tempered fabric, but their numbers remain very low. From for example the construction pit of well structure OS 2562 and dated to fort level 5A, only one grass-tempered ware (GERM CHT) fragment was recovered. Low numbers are also observed in structures of fort level 5B. The construction pit of the large water-basin OS 4923 yielded only some ten Germanic pottery fragments. Apart from two chaff-tempered fabrics, they show fabrics with abundant stone tempering. The primary infill of the basin yielded only one fragment in Germanic tradition, in a fabric also characterised by many stone inclusions, together with red grog. Also from construction slot OS 7200 (of the stable of FL 5B (Plate XXXVI: j)) only one grass-tempered fragment was recovered, from pit OS 10908/8924A (Plate XXXVI: pit to the south of construction slot m) two grass-tempered and two shell-tempered fragments. Another eight grass-tempered fragments belonged to other features of fort level 5.

Although the above assumes a scarce presence of Germanic pottery at fort level 5, a closer look to the handmade pottery of the transition level 5+post and of the first levelling layers after the abandonment of the fort, changes this perception as it shows a much higher proportion of late Roman handmade pottery in Germanic tradition.

The secondary infill of basin OS 4923, consisting of demolition debris layers of the bath house covered by dark earth, yielded no less than 89 fragments of Germanic pottery of which many of large size (Fig. 103-104)<sup>130</sup>. This level was also characterised by the presence of a large number of Mayen vessels. Different fabric groups in the Germanic pottery can be discerned. The chaff-tempered fabric accounts for four MNI; two body fragments display a fabric exclusively tempered with abundant stone inclusions. Most of the pottery sherds in question, accounting for sixteen MNI, have a fabric with abundant and coarse tempering of stone inclusions, little to abundant red grog (sometimes protruding through the surface), rare to some vegetal material and little to abundant chalk inclusions (the latter are not always present) (Mignauw 2005, 162) (cf. Fig. 103). These fabrics can be related with fabric groups A (characterised by stone inclusions) and E (mainly red grog) defined by De Paepe and Van Impe (1991). As mentioned above, they connected fabric group A with the use of 'boulder clay' from the North of Germany or the Netherlands. Although the represented forms can be recognised in the early medieval repertoire of the region (see Hollevoet 1993a, 198-199; Hollevoet 2006, 244), they occurred already much earlier as evidenced by the pottery found at Zele, east of Ghent. There, the pottery belonged to Germanic settlers from the late 3rd century (see De Clercq *et al.* 2005, 209-216; De Clercq 2009, 461-462). De Paepe and Van Impe also concluded that the 'red grog' group, their fabric group E, was probably made locally. This fabric was also defined as such by Rogge and van Doorselaer (Rogge and van Doorselaer 1991:

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<sup>129</sup> These were first recognised by T. Bruyninckx within the context of her master thesis on the pottery assemblage of this well (Bruyninckx 2007).

<sup>130</sup> These were first identified by B. Mignauw within the context of his master thesis on the pottery assemblage of this context (Mignauw 2005).



fabric no. 4). These productions with stone (and grog) inclusions mainly represent pots with more or less S-profiled body, short neck and everted or upstanding rim (Fig. 104).



Fig 103: Germanic pottery fragments recovered from the secondary infill of the large basin OS 4923 of fort level 5B. The vessels are characterised by a fabric with abundant and coarse tempering of stone inclusions, little to abundant red grog, rare to some vegetal material and sometimes with chalk inclusions (Photo by F. Lagae).

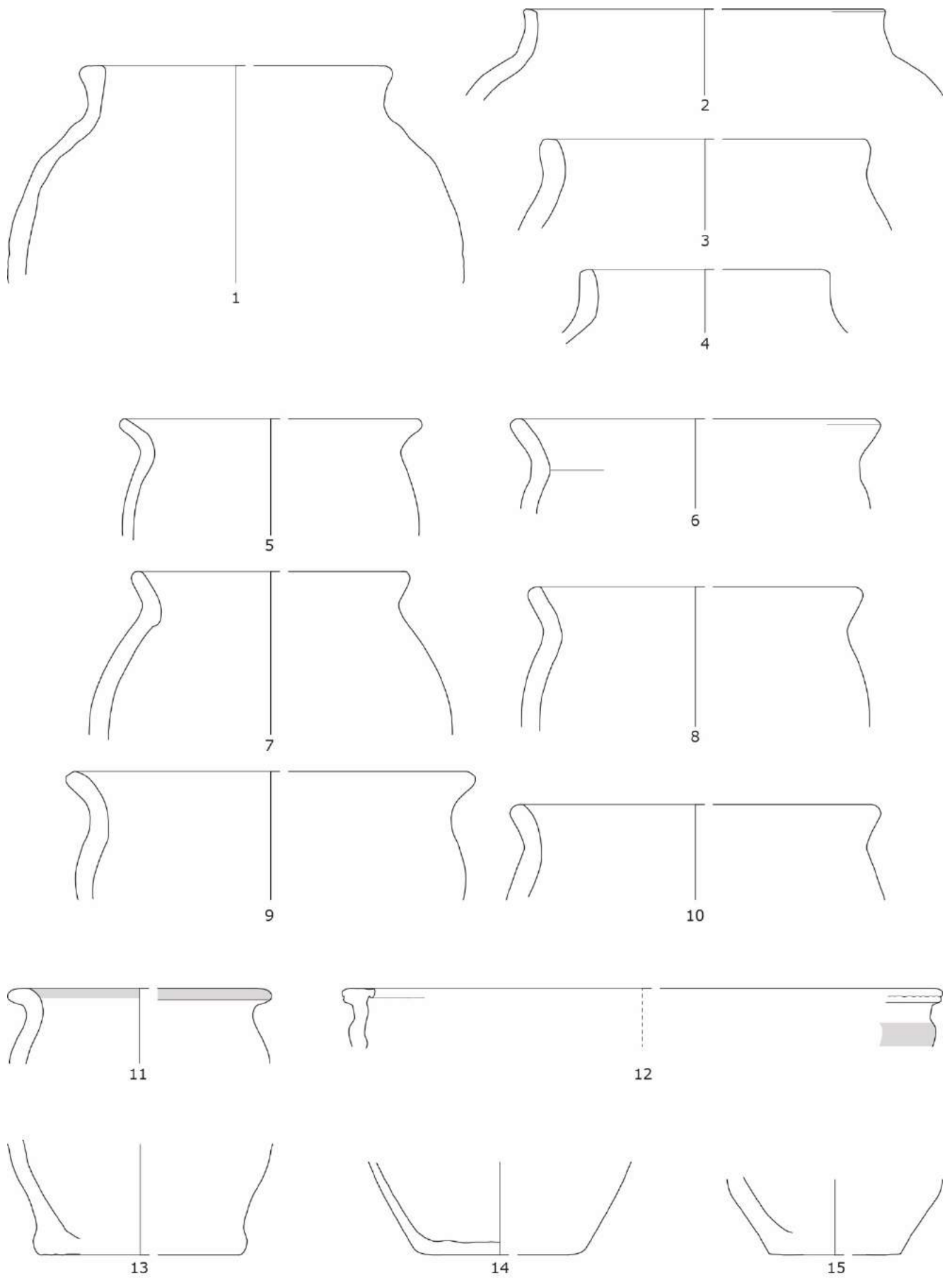


Fig 104: Drawings of the coarse Germanic pottery with stone inclusions – several are represented on the previous figure – recovered from the secondary infill of the large basin OS 4923.



The few preserved rim fragments in grass-tempered ware at fort level 5B show a homogeneous repertoire of wide open egg shaped pots with ovoid body and slight S-shaped profile or upstanding rim. This form persisted in the early medieval period (cf. Fig. 105). These fragments at fort level 5B establish that this pottery was certainly in use in the late 4th-early 5th century, although in very small numbers. In the post-Roman level, in total 872 grass-tempered ware fragments were found. However, since this pottery continued to be important in the wider coastal region and is mainly a guide fossil for early medieval sites<sup>131</sup> (cf. e.g. Hamerow *et al.* 1994), it is uncertain to what degree the individuals found in later levels represent dug-up material, pottery from remaining people after the military function of the fort stopped, or pottery from newcomers at the site after the abandonment of the fort. A Germanic connection can definitely be concluded from the chaff-/grass-tempered pottery in the Roman level, though. Before the late Roman period, this tempering technique had only been used for *briquetage* material within the context of salt-making sites. The North-Menapian fabrics were also characterised by some vegetal tempering, but always in very low proportions to the other inclusions. The earliest grass-tempered wares in the wider region are known from the above mentioned late 3rd-century site at Zele, and could undoubtedly be related to Germanic pottery traditions (De Clercq and Taayke 2004; De Clercq *et al.* 2005, 209-216; De Clercq 2009, 461-462). Also at Aardenburg this pottery has been attested (site 'weide De Smet', excavation by J. Trimpe Burger (Dhaeze 2011)).

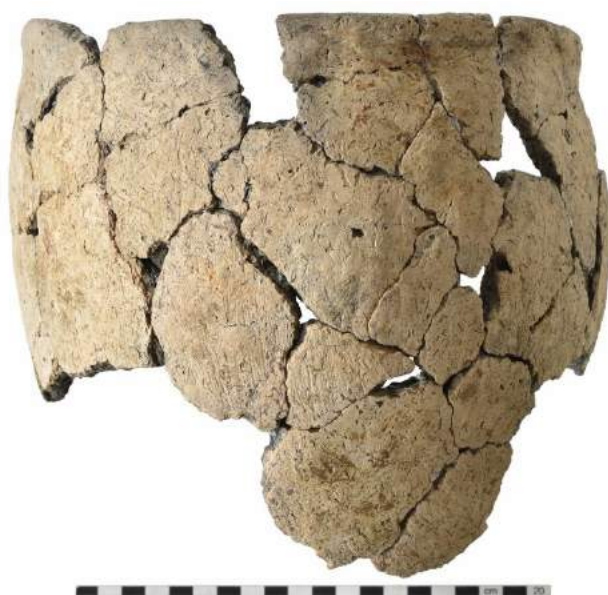


Fig 105: Grass-tempered ware vessel recovered from the lowest layers of the dark earth level, believed to be dated to the Merovingian period (pers. comm. Y. Hollevoet). However, similar pottery fragments were recovered from fort level 5B and can be dated to the late 4th – early 5th century.

A few handmade fragments display a shell-tempered fabric. The earliest fragment was recovered from the waste fillings of well OS 22926 of fort level 4; at fort level 5, fragments were found in pit OS 10908/8924A and in the final waste infill of well structure OS 2562. Shell-tempered pottery is rare. It already occurred in the coastal plain before the late Roman period, however very scarcely, as some fragments at site Plassendale near Ostend demonstrate (late 2nd – early 3rd century; Vanhoutte and De Clercq 2006, 101). During his research on late Roman pottery, Van Thienen (2017) has observed an increase in shell-tempered pottery in northern Belgium and the southern Netherlands during the later 4th and early 5th century. It does not seem to have been a Germanic tradition, nor does it appear to be a well-spread Gallo-Roman tradition (cf. De Clercq 2009). The distribution of this pottery in the late Roman period was not restricted to the coast, but it also occurs on sites away from coastal areas, however connected by rivers and/or roads. According to Van Thienen, this new phenomenon can be considered as an expression of acculturation and change in the sociocultural context of rural Gallo-Roman territories in the north. The shell inclusions can

<sup>131</sup> For this period, the chaff or grass tempered ware has been interpreted as an Anglo-Saxon phenomenon (Hamerow *et al.* 1994; Hollevoet 2011, 87).

be seen as one of multiple fabric innovations or experiments related to the increase of Germanic presence within northern Gaul on rural and military sites. It can be explained as an attempt of locals or immigrants to distinguish objects in their internal cultural or private sphere from the others. Locals could have redefined shell temper as a Gallo-Roman practice to stress their heritage. Immigrants could have sought for material that imitated the (white) rock inclusions from their traditional ceramics, as is seen from areas north of the Rhine, or could have experimented with new ways of tempering to claim their distinct cultural background (Van Thienen 2017b).

While the features of fort level 5 only yielded a limited number of Germanic/Germanic-style pottery, the levelling layers covering the Roman level indicate on the opposite a significant presence. While the grass-tempered pottery occurred throughout the post-Roman level, the other Germanic fabrics were mainly found in the layers on top of the Roman level. The several cross joins with the post-Roman level as could be evidenced mainly by the samian wares and mortaria, and the indications that the secondary infills of structure OS 2562 consisted of earth (with pottery) of the surrounding levels (cf. Chapter V, Section V.2.1), are arguments to believe that the top of fort level 5, the latest phase of fort level 5B, had been largely dug away after the (military) abandonment of the fort, mainly to level the area and to fill in the depressions and pits on site. Therefore, one can assume that (at least part of) the Germanic pottery found in this transition level originally belonged to the final fort occupation. This seems to conclude in a very limited presence of Germanic pottery at fort level 5A (and already some single finds at fort level 4), while at fort level 5B these wares were well represented. De Paepe and Van Impe (1991) already pointed to the given that the pots of Germanic origin and those locally produced, are hardly distinguishable. The native tradition was strongly followed and Germanic people within the Roman Empire wanted to distinguish themselves as Germanic by looking for local materials to imitate native products. Nevertheless, while strongly holding on to their traditions, the fort inhabitants were still embedded firmly in the trade networks of 'Roman' pottery supplies.

## APPENDIX 22 - Metal finds at the south-west corner site with comparisons to the finds at the other Oudenburg fort sites

### 1. Introduction to the metal assemblage

The south-west corner site yielded a vast amount of Roman metal finds. Both copper alloy and iron items are represented in large quantities: 46,083 items in iron were counted, 4,149 in copper alloy (excl. coins)<sup>132</sup>. These counts also comprise the items found in the post-Roman levels; the character of these finds, however, point to a Roman date. Their context makes it impossible to allocate their original source: were they dug up from the local fort site or brought in with other waste from outside the fort, either waste from the fort or from the civil settlement? The nature, size and preservation of many of the catalogued items makes it very likely, though, that they did not move over a large distance and that at least a large part of them can be interpreted as dug-up items from the fort precinct.

In general, the metal finds of the Oudenburg site are characterised by heavy corrosion; however, their original contours were in most cases still preserved within the different corrosion layers. As a consequence, the majority of these finds – mainly those in iron – were not identifiable with the naked eye. This resulted in a very demanding conservation process with inevitable focus on selective cleaning<sup>133</sup> <sup>134</sup>. In combination with different imaging techniques such as mainly X-radiation analysis<sup>135</sup> and some selective computerised tomography and  $\mu$ -CT-scanning<sup>136</sup>, a maximum of archaeological information from the totality of the assemblage was achieved and decisions were made for further conservation, whether active or preventive<sup>137</sup>.

The importance of a thorough study of the Oudenburg metal assemblage is beyond dispute: both in terms of quantity and diversity, this assemblage represents a reference collection for the late 2nd to early 5th century of this region. Therefore, a full range of items is represented, including the variety of fittings and miscellaneous items (see further: categories J and K). Except for Roman jewellery finds, our knowledge on Roman metal in the region is very limited (see Vanhoutte *et al.* 2008), and one has to rely mainly on British and German metal studies for their classification and typology. The stratified context at the Oudenburg site makes the study of the metal assemblages very valuable: large assemblages can be analysed contextually and chronologically, which offers the opportunity to compare with other forts in the Channel region. On an object level, the study yields results on typo-chronological evolutions. On a site level, the metal finds give evidence of the evolution in the activities of the fort inhabitants and in the functionality of this south-west corner of the fort. In the analysis below focus lies on what information the metal assemblages represent in terms of the functionality of the south-west fort corner during the successive fort periods.

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<sup>132</sup> Not included in these numbers are eight copper alloy items from the post-Roman level which can be identified as medieval; one iron item and 25 copper alloy specimen are more recent finds.

<sup>133</sup> The author wishes to thank F. Debuyser, who deserves a great deal of credit for patiently cleaning and conserving most of the metal finds and coins of the Oudenburg site. I am also indebted to the successive conservators-restorators at the Institute for Archaeological Heritage/Flanders Heritage Agency for their contribution in organising the X-ray scanning and their overall help during the conservation process. A special thanks goes to N. Cleeren, former conservator-restorator at the Institute, for her input and continuous help.

<sup>134</sup> In total, 1018 items in copper alloy were cleaned, representing almost one quarter of the copper alloy assemblage. The selective approach regarding the iron assemblage resulted in 404 representative items in iron which were completely or partially cleaned, accounting for 0.87% of the total assemblage.

<sup>135</sup> All copper alloy finds and c. three quarter of the iron assemblage were X-rayed.

<sup>136</sup> With thanks to M. Dierick of the Centre for X-ray Tomography at the Institute for Nuclear Sciences at Ghent University for the opportunity to scan some specific metal items.

<sup>137</sup> For an overview of the applied conservation strategy: see Cleeren and Vanhoutte (2006; 2015). The conservation approach of the iron assemblage of Oudenburg has also been discussed in Cleeren *et al.* 2013.

## 2. Functional classification

The Oudenburg metal finds are catalogued and presented according to the functional classification proposed by a French collective of metal specialists in France (Briand *et al.* 2013). Their functional classification in domains and categories has been slightly modified given the character of the Oudenburg assemblage (Table 70). The same classification and coding has equally been applied in cataloguing the finds in worked bone/horn/antler/ivory, to enhance the overview of and the search for finds represented by each domain.

From most of the nails, fittings, joinery and framery items it cannot be determined whether they belonged to furnishing (domestic life) or whether they represent constructional elements of immovable property. Therefore it has been chosen to classify them separately as (structural) fittings (J). Only fittings which can undoubtedly be identified as construction elements are classified under immovable property (I).

DOMAIN	CATEGORIES	DEFINITION	
<b>A</b>	<b>military life</b>	<u>military equipment / military dress</u>	equipment and arms, incl. those that can be used for hunting
<b>B</b>	<b>personal life</b>	<u>ornament and dress</u> <u>body care</u>	all elements of dress and accessories items related to cosmetics, hygiene and medicine
<b>C</b>	<b>crafts / production / relation to natural resources</b>	<u>crafts</u>  <u>hunting and fishing</u> <u>agro-pastoral</u>	items related to extraction, production and transformation of natural resources and agro-pastoral products, incl. primary materials, craft tools and utensils objects serving exclusively for fishing and hunting items related to the exploitation of the soil, maintenance of landscapes and open space, animal husbandry, agriculture, incl. agro-pastoral tools
<b>D</b>	<b>domestic life</b>	<u>culinary activity</u>  <u>lighting, heating</u>  <u>furnishing</u>  <u>vessels</u>  <u>household utensils</u>	objects of the culinary atmosphere, from preparation to consumption and storage items related to the production of warmth, heat and light furnitures, their decoration, also their elements of assembly and their systems of closing (locks, keys, ...) all vessels not classifiable as culinary items, incl. all their elements items not classifiable in the other categories, like knives, clasp-knife, sewing needles, ...
<b>E</b>	<b>social life</b>	<u>entertainment</u> <u>music</u> <u>writing (is also exchange)</u>	counters, toys, ... instruments items related to writing
<b>F</b>	<b>spiritual life</b>	<u>statuary (is also domestic life / social life)</u> <u>beliefs and funerary world</u>	3-dimensional representations of all sizes items related to magic, divination, religion, rites, cultural and funerary practices
<b>G</b>	<b>trade, exchange</b>	<u>counting, measuring, exchanging</u>	items related to commerce, trade, measuring (steelyards, weights, tokens, ...)
<b>H</b>	<b>transport</b>	<u>navigation</u> <u>equipment related to animal</u> <u>vehicle</u>	infrastructure and items related to transport on water harness elements (like spurs), animal equipment fittings elements of yokes, wheels and terrestrial vehicles
<b>I</b>	<b>immovable property</b>	<u>structure (rough shell)</u>  <u>joinery, framery</u>  <u>hydraulics</u>	nails, ironwork, elements used for the construction and the arranging of the building joinery, door-and windowframing, incl. nails and fittings for the realisation and the functioning of buildings and rooms objects related to the management of water
<b>J</b>	(structural) fittings (unclassifiable)	<u>unclassifiable nails, fittings, joinery and framery items</u>	fittings of which cannot be determined to which find domaine they belong
<b>K</b>	<b>miscellaneous</b>		identified items of which the precise function cannot be determined items of which the identification is not known

Table 70: The functional classification in domains and categories, mainly taken over from Briand *et al.* 2013, with modifications given the character of the Oudenburg assemblage.

This functional classification is not always straightforward as several types of items have dual or multiple purposes and can belong to different domains and categories. The overview of the functional domains demonstrates that the copper alloy items mainly yield information on a military, personal and domestic level, on crafts/production (*i.e.* mainly bronze working) and on transport. The iron assemblage mainly contains information on military life, domestic life and/or immovable property, in addition to a significant contribution in the area of crafts/production, mainly in the form of tools<sup>138</sup>.

Representative items are listed in the catalogues; the catalogue of the copper alloy finds is included as Addendum 6, the catalogue of the iron finds as Addendum 7. For each item in the catalogue comparable finds are listed where possible and to the extent necessary to understand the chronological significance and the area of distribution of the considered find type. In this respect a special focus has been given to the occurrence at the other Channel forts. The literature study in the catalogue has not the intention to be exhaustive. As with the study of the pottery, items of which the context and the attribution to a specific level is uncertain, are counted in with the latest level in question (*e.g.* finds from level 4+5 are counted as level 5). References to typologies, geographic distribution and similar finds are listed in the catalogue and will not be repeated here.

### 3. The copper alloy assemblage

#### 3.1. *The copper alloy assemblage in general*

Of the in total 4,150 copper alloy items (CA), 866 are represented in the catalogue (Addendum 6; Table 71; see Plates CCI-CCLXI). The other items mainly concern copper alloy sheet, whether or not riveted, fragments of rods, bars, shafts, stems, amorphous pieces and undetermined fragments, next to 69 items identified as slag material. Of the 866 catalogued items, 202 were found in the post-Roman or mixed levels; 91 of the latter were recovered from the transition levels between the Roman and post-Roman levels and were most likely either still situated at the top of fort level 5 or dug up from that level.

A striking 51.2% of the catalogued items (representing 443 items) – and this proportion is representative for the total amount of uncovered copper alloy items – belongs to fort level 4. Certainly, this is mainly due to the function of the south-west corner site as a workshop area during that period. Apart from the attested brooch and bracelet production, more copper alloy items will have been produced and/or repaired in these workshops and many others will have been used as slag material.

Of a lot of fittings, links and rings the function is not traceable; non-ornamental rings were used for various purposes (*cf.* illustrated examples on Plate CCLIX). Some may have been related to handles and hinges of furniture, others with parts of the horse harness such as the bridle and bits.

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<sup>138</sup> I am greatly indebted to M. Lyne for his enormous help in identifying many finds through several sessions, and to N. Tisserand for his feedback on the catalogued items.

find domaine / category	item (found complete or as fragment)	cat. nos.	TOTAL n	L1	FL2	FL3	FL4	FL5	POST
<b>military life</b>									
<i>military equipment</i>									
	scabbard chape	A01-02	2		1				1
	scabbard runner	A03	1			1			
	helmet fragment (or presumed)	A04-06	3				2		1
<i>military dress</i>									
	phalera (as military decoration)	A09	1				1		
	cuirass hinge	A10	1		1				
	baldric fitting	A11	1				1		
	baldric phalera	A12-20	9			1	2	5	1
	strap-end	B009-011	3						3
<b>military life / transport</b>									
	spur (?)	A07-08	2					1	1
	horse trappings / belt mounts	A/H21-95	76	1		6	35	15	19
<b>transport</b>									
<i>equipment related to vehicle</i>									
	yoke ring	H01-033	33			1	9	10	13
	charriot fitting	H34-35	2				1		1
<i>equipment related to animal</i>									
	harness bell	H36-37	2				1	1	
<i>navigation?</i>									
	ship nails (?)	H738-43	6				2		4
<b>personal life</b>									
<i>ornament and dress</i>									
	brooches	B012-70, 104-192	162		4	7	82	25	44
	buckle (with or without buckle plate)	B001-005, 007	6				1	1	4
	buckle plate	B006, 008	2				1		1
	bracelet	B233-248, 255-269	31			2	16	4	9
	finger ring (incl. key ring (is also furnishing))	B270-277	8		1	2	1	1	3
	hair pins	B279-287	10				2	6	2
<i>body care (medicine or toilet implement)</i>									
	probe	B289-293	5			1	2	1	1
	tweezer	B294-296	3			1	1		1
	mirror	B288	1				1		
<b>domestic life</b>									
<i>culinary activity (eating / drinking)</i>									
	spoons	D117-120	4			1	1	2	
	vessel (or fragment)	D046, 64, 72-116, 154-224							
	- baking tin?		1				1		
	- bowl		5			1	3		1
	- bucket		15			1	7	1	6
	- casserole		1				1		
	- cauldron		1				1		
	- plate		6				4		2
	- dish		2				2		
	- dish/bowl		1				1		
	- jug		4				2	1	1
	- patera / sieve		2				1	1	
	- dipper		1					1	
	- sieve or dipper		8				5	1	2
	- sieve		33		3		13	11	6
	- vessel undetermined		38		2	3	17	7	9
<i>household utensils</i>									
	knife scabbard	D065	1				1		
	knife handle	D066-67	2						2
	sewing needle (incl. one unfinished needle)	D068-71	4				3	1	
<i>lighting</i>									
	candlestick	D001-004	4				3		1
<i>furnishing</i>									
	key (excl. key rings)	D052-57	6			1	1	3	1
	decorative nail (lock pin or other)	D005-021, 143-146(?)	21			1	13	4	3
	decorative fitting	D022-26	5				2	2	1
	furniture handle (or presumed handle fragment)	D027-31, 35, 37-44, 147-151	19			1	11	4	3
	box or chest sheet fitting	D045, 47-51	6				2	2	2
	furniture hinge	D059-62	4				2	2	
	furnishing or charriot fitting	D022	1				1		
<i>furniture / vessel</i>									
	chest or vessel handle	D033-034	2				1	1	
	footstand	D063	1		1				
	chest/vessel/helmet carrying handle	D032, 036	2				1		1



find domaine / category	item (found complete or as fragment)	cat. nos.	TOTAL n	L1	FL2	FL3	FL4	FL5	POST
<b>crafts (repair) / domestic life</b>									
	repair plate (reparation of vessels)	D/C121-124, 126, 128-141, 153	22				9	7	6
<b>crafts - production</b>									
<i>bronze production in general</i>									
	slag material and production waste	C01-06	6	1			5		
<i>brooch production</i>									
	failed or untwisted brooch product	B/C071-103, 193-232	123			1	101	12	9
<i>bracelet production</i>									
	failed product	B/C249-254	6				3	1	2
<i>textile working</i>									
	netting needle (textile working + fishing)	C07-22	16				10	2	4
	weaving comb	C23-24	2				2		
<b>trade, exchange</b>									
	steelyard elements	G01-15	13				7	5	1
	steelyard weight/cursor	G13-14	2				1	1	
<b>social life / exchange</b>									
<i>writing implements</i>									
	stylus	E01-02	2				1		1
	wax spatula	E03	1				1		
<b>spiritual life</b>									
	statuary	F01-04	4				3	1	
	cymbal (is also social life)	E/F05	1				1		
<b>immovable property</b>									
	hydraulics	I01	1						1
<b>miscellaneous</b>									
	machinery fragment?	J-K K01	1					1	
	link		63	1	2	2	24	16	18
	fitting		18				7	3	8
	binding		4				3	1	
	chain fragment		2				1	1	
	undetermined	K	9				5	3	1
			<b>866</b>	<b>3</b>	<b>15</b>	<b>34</b>	<b>445</b>	<b>168</b>	<b>201</b>

Table 71: Classification of the catalogued copper alloy assemblage of the south-west corner site.

### 3.2. Military equipment and military dress

Twenty-one copper alloy items of the south-west corner site can be unambiguously identified as military items, whether as part of military equipment (six items) or of military dress (fifteen items) (Plates CCI-CCII). No such finds can be assigned to level 1; military accessories are however clearly present in the later fort levels.

Fort level 2 yielded a pelta-shaped scabbard chape (CA.A01) of a well-known 3rd-century type (see Miks 2007, Taf. 247; Oldenstein 1976, Taf. 20). Item CA.A10 can be identified as an element of a cuirass hinge, part of a *lorica segmentata*.

To fort level 3 a simple, 3rd-century baldric *phalera* (CA.A14) can be assigned, as also a scabbard runner (CA.A03) of a type current for the third quarter of the 2nd – third quarter of the 3rd century.

Six military items belong to fort level 4. A large *phalera* (CA.A09) – a sculpted disc depicting most likely the head of a god – can be recognised as a military decoration given to a soldier (most often high-ranked) or a unit as an award for distinctive conduct in action<sup>139</sup>. Three baldric *phalerae* (CA.A14, A15, A16) are of the current 3rd-century type; a fitting (CA.A11) can be identified as the back side element of such a *phalera*. The two items CA.A04 and A05 represent helmet cheek fragments. They probably belonged to Intercisa type-like helmets, possibly related to the subtype

<sup>139</sup> These military distinctions were awarded in sets of five, seven or most often nine discs (Maxfield 1981, 92).

of Worms, and usually related to infantry (cf. Bishop and Coulston 2006, 210, 211: Fig. 134, 4; Fischer 2012, 158-160), although the fragments are small to be certain.

At the north-east corner site (site Kapellestraat) level 6 yielded some remarkable *militaria* (Vanhoutte *et al.* 2014, 218-219). This level can be identified as fort level 5; however, from the study of the other find categories at this site (mainly the coins and pottery) it could be concluded that this level largely consisted of dug-up material from the earlier level, fort level 4. A miniature *beneficiarius* lance head probably functioned as a belt strap-end<sup>140</sup> (Fig. 106). Such items appeared from the end of the 2nd century onwards, but were mainly popular in the 3rd century (Bishop and Coulston 2006, 152-154, 182-184; Oldenstein 1977, 157). They were not only attributed to *beneficiarii*, but also to *frumentarii* and *speculatores* – all privileged soldiers with significant responsibilities (see D’Amato and Summer 2009) –, and acted as indications of their rank and position (Stephenson 1999, 104) and as symbols of imperial power (Oldenstein 1977, 153-157). Other military dress accessories found at this level at the north-east site are a *lorica* fastener and two profiled longitudinal items which can be recognised as a specific type of strap-end of multi-leg trimmings, either as part of military dress or horse gear (cf. Oldenstein 1977, 145-146).

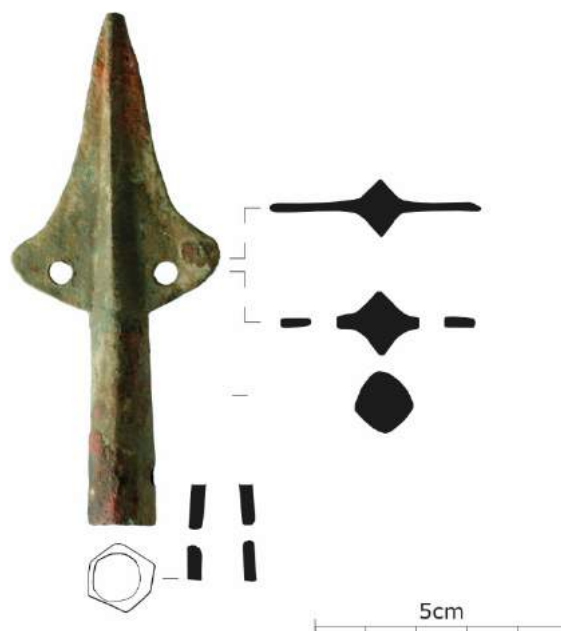


Fig 106: The miniature beneficiarius lance found at the north-east fort site Kapellestraat (Vanhoutte *et al.* 2014, 218: Fig. 62, 1).

At fort level 5 at the south-west corner site, five military items were recovered. Two round baldric *phalerae* with central boss (CA.A17 and A18) represent a type known for the 3rd century. The two enamelled mounts (CA.A19 and A20) are baldric *phalerae* are dated to the 3rd-4th centuries. The miniature shield (CA.A12) can be recognised as a late Roman baldric fitting. Three strap-ends, two definitely (CA.B009 and B011) and one most likely (B010) of the late amphora-shaped type, can, although not recovered from within the Roman level itself, definitely be assigned to fort level 5 as they date to c. AD 350-390 according to Keller (1971, 65-66).

Another three military items were recovered from the post-Roman levels. Very significant is the fragment of a very late type of scabbard chape, dated by Miks (2007, 415-418) to the end of the 4th-end 5th/early 6th century. An openwork disc-shaped (baldric?) *phalera* (CA.A13) remains unparalleled but similar openwork fittings are known with two to four attachment lugs, generally seen as horse gear trappings. Fastening elements are lacking at the Oudenburg item, but may have

<sup>140</sup> Such miniature lance heads functioned as a baldric or belt element: on the belt as strap-end or decorative fitting, on the baldric as *phalera* or military decoration (Stephenson 1999, 104). The absence of studs and the round-sectioned hollow end of the Oudenburg object assumes it was used as strap-end.

consisted of, not preserved, small studs or loops on the back, which favours an identification as part of the military dress for this piece. The sheet fragment with undefined sculpting (CA.A06) may have been part of a cavalry helmet.

### 3.3. Indications for cavalry and (military) transport

To the listed military items, two presumed spur fragments can possibly be added; one fragment was recovered from fort level 5 (CA.A07), the other from the post-Roman level (CA.A08) (Plate CCI). Furthermore, the south-west corner site yielded a considerable amount of 76 trappings, all (presumably) horse gear mounts, representing different types (CA.A/H21-95)<sup>141</sup> (Plates CCIII-CCVIII). The common round mounts account for 48 examples – small, medium and large sizes are present –; other identifiable types are shell-shaped, disc-and-foliated, vulva-shaped/hexagonal, pelta-shaped, lunula-shaped (mount or pendant), rectangular, large oval, shield-shaped and dolphin-shaped (Table 72).

mount	L1	FL2	FL3	FL4	FL5	5+POST/ POST	TOTAL
large round	1			4	1	2	8
medium round				9	5	4	18
small round			3	11	4	3	21
dolphin-shaped			1				1
disc-and-foliated				3	1	1	5
lunula-shaped					2		2
large lunula							0
pelta-shaped			1			2	3
shell-shaped				3	1	2	6
shield-shaped				1			1
vulva-shaped/hexagonal			1	1	1	2	5
rectangular						1	1
large oval				1			1
undet.				2		2	4
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>6</b>	<b>35</b>	<b>15</b>	<b>19</b>	<b>76</b>

Table 72: Overview of the horse gear trappings recovered from the south-west corner site.

These trappings are generally accepted as being decorative horse gear fittings (cf. e.g. Nicolay 2007), an identification confirmed not only by depictions (however scarce, see Zwart 1998, 81) but also by *in situ* finds such as in the Beuningen horse burial (NL) (late 1st – 2nd century) (Zwart 1998) and in the tumulus grave at Celles-les-Waremme (B) (late 2nd – first half 3rd century) (Massart 2000)<sup>142</sup>. The large quantity and the size of several of the Oudenburg mounts certainly assumes that at least most of them originally decorated horse gear; in addition, the large lunula-shaped mount (CA.A/H74) and the large oval fitting (CA.A/H76) would only fit on broad bridle straps. Although also known at civil sites and not exclusively reserved for the military (cf. Nicolay 2007), these horse gear trappings at the Oudenburg fort, certainly those found in the Roman level, can be seen as representative(s) of military transport and can be considered as indications for the presence of cavalry.

All the types represented by the trappings can be dated to the second half of the 2nd and 3rd century; only for the shell-shaped type parallels are known until the first half of the 4th century. However, although it cannot be excluded that they are all dug-up items, the occurrence of

<sup>141</sup> In literature these trappings are sometimes referred to as *phalerae* (see e.g. Bishop and Coulston 2006, 162). Here it is chosen, to avoid confusion, to reserve this term for the military decorations and the baldric fittings.

<sup>142</sup> It is, however, necessary to point to the finds in a grave at Cabriana (Burgos, Spain) (see Aurrecochea Fernández 1996, 140: Fig. 20) which demonstrates that, mainly the smaller-sized, mounts such as the pelta and shell mounts could also decorate (military) belts. This might have been only a late Roman fashion and 2nd- and 3rd-century trappings were most likely only used to decorate the horse harness.

seventeen mounts at fort level 5 may indicate that the mid-Roman mount types still continued to be used in the 4th century; the presence of another nineteen mounts in the post-Roman level, of which five items can certainly be assigned to the transition level 5+post and most likely belonged to fort level 5, strengthens this idea. To level 1 only one mount can be assigned (of the large round type (CA.A/H44)). Fort level 2 yielded none, but this is possibly due to the function of this corner area where at that time a military hospital was located. While six mounts can be assigned to fort level 3, no less than 35 items belonged to fort level 4, mainly found at and near the workshops, maybe some to be repaired or to be used as scrap metal for remelting. Several damaged mounts may be an indication for this, although it cannot be excluded that these just suffered through time from their burial in the ground. An exception to this group is formed by a deposition of five horse gear trappings within building Unit IX and found to the south-west of hearth 38. In a small, shallow pit (preserved to a depth of 14 cm, see Addendum 3, 38: section 8/45) a small round mount (CA.A/H29), a medium round one (CA.A/H43), a large round one (CA.A/H47), a shell-shaped one (CA.A/H54) and a disc-and-foliated mount (CA.A/H68) were buried together. Again, also at the north-east site (site Kapellestraat), a large amount of horse gear fittings can be attributed to fort level 4 (although mainly recovered from the later level, however most likely as residual material as already discussed above) (cf. Vanhoutte *et al.* 2014, 236).

Horses were probably also the carriers of the two harness bells (CA.H36-37) (Plate CCLVII) of the south-west corner site; one was found at fort level 4 (CA.H36), the other at fort level 5 (CA.H37). Bells of this size were attached to the halters or collars of cavalry, domestic and draught animals (Crummy 1983, 127; see also Allison *et al.* 2005, Section 8.2.2), possibly for apotropaic reasons (Gusman 1900, 127-128; Bös 1959, 25). Their function as part of horse gear is evidenced by depictions and horse burials as for example the one found at Beuningen (NL), probably to be dated in the late 1st or 2nd century (Zwart 1998, 82: Fig. 5).

Another significant assemblage is that of the 33 bridle rings (CA.H01-H33), elements of yokes of chariots or carts and used to guide the reins (Plates CCLI-CCLVI). These bronze yoke rings were placed in the centre of the raised parts of the yoke above the neck of both the draught animals. The lower part of the yoke element, either formed by a pin or a ring, penetrated through the yoke. The lower ring element, or in case of yoke CA.H23 the side rings, were used to fasten the V-shaped, iron collar which hung under the horse's neck (Nicolay 2007, 221). The two chariot fittings (CA.H34-35), one of fort level 4 and one of the post-Roman level, can be related (Plate CCLVII). One yoke ring can be assigned to fort level 3, nine to fort level 4, ten to fort level 5 and thirteen to the post-Roman level. Several of such yoke rings were found in the 1970 and 1977 excavations in the northern sector of the fort<sup>143</sup> (Fig. 107). Also at the Aardenburg fort a significant assemblage of fourteen bridle rings has been found (Besuijen 2008, 74). Although yokes were associated with different draught animals, not only horses, but also, and mainly, oxen and mules (cf. Junkelmann 1990, 68; Raepsaet 2002), the association of decorative horse gear trappings and yoke components at several cart burials unearthed in *Pannonia* and at a horse burial at Frenz in Germany have demonstrated the use for carts of draught horses. Their yoke and also their harness were richly embellished with fittings, in the same way as the cavalry mounts (cf. Nicolay 2007, 223 with references).

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<sup>143</sup> It appeared not possible to link them to a specific stratified context.



Fig 107: Yoke rings uncovered in the northern sector of the Oudenburg fort during Mertens' excavations in 1977 (Unpublished material, Archive NDO J. Mertens, Flanders Heritage Agency). The large yoke ring on the right knows three similar examples from the cart burial of Long Pont (province of Brabant Walloon, Belgium) dated to the first half of the 3rd century AD (Mariën 1979) (however not identical with a slightly other shape of ornament below the bell-shaped part).

Similar bronze spikes as items CA.H?38-43 (Plate CCLVII) and found at Richborough fort (cf. Lyne 1996, 148: Fig. 1, 1-4) have been identified by Lyne as originating from shell-first constructed galleys of Mediterranean type. He interprets the used and extracted bronze nails which have been found at Richborough throughout the Roman level as deriving from the breaking up of old *Classis Britannica* ships (Lyne 1996, 147). At the Oudenburg site these spikes appear to be a late phenomenon, with two examples found in a (presumed) fort level 4 context, and four more items which can be generally attributed to the post-Roman level. With the possibility to reach the Oudenburg fort walls closely by ship in the late Roman period, the identification of these spikes as ship nails is not impossible. The Oudenburg find contexts, however, cannot contribute to the validation of this interpretation.

### 3.4. Personal life

In total 226 items can be related to the personal life of the fort inhabitants. They consist mainly of ornament and dress accessories: 162 brooches; five buckles; two, possibly three buckles with belt plate; 31 bracelets and (presumed) bracelet fragments; eight finger rings; nine or ten complete or fragmentary hair pins. Two of the finger rings, the key-rings, enter the domestic atmosphere as they were used to lock small furniture, like a chest or box. Eight items are related to body care: five probes, three tweezers and one small mirror.

#### 3.4.1. Brooches

The south-west corner site yielded in total 162 (finished) brooches but there is no large variety in types (Table 73; Plates CCX-CCXIV). The high number of brooches is biased by the brooch production on the site during fort period 4 which evidently resulted in a lot of end products and an overrepresentation of the brooch count (see also further). The production in question only concerns the 'simple one-piece sprung brooch' with wire bow<sup>144</sup>, recently described as 'wire brooch with a

<sup>144</sup> Bayley and Butcher classify this type as 'simple one-piece sprung brooch' (Bayley and Butcher 2004, 53: type T10-11), Guillaumet as 'fibule à ressort nu et corde interne' (Guillaumet 1993, 23) and Böhme and Riha as 'Eingliedrige Drahtfibeln mit unterer Sehne' (Böhme 1972,13; Riha 1994, 56). Böhme (1972) identifies it as type 14 in his typology, Almgren (1897) as type 15.

more or less angular bow<sup>145</sup> and spring with three or four coils and internal chord' by Heeren and van der Feijst (2017, 123-126) (type 45a8). In total 131 brooches of this type were recovered (CA.B043-70, B104-192). As this type was made at the workshops of fort level 4, as evidenced by production waste (see further), this evidently resulted in a large number of this type at this fort level (73 brooches). It was clearly a series product; often the coils appear to be made very carelessly. This brooch type seems to have been a standard element of the military dress at least from fort level 2 onwards, a simple brooch to fasten the coat, not a dress item used as *insignia*. The nineteen brooches of this type at fort level 5 and the 29 examples in the post-Roman level were probably dug-up items.

general brooch type	cat.no.	number	L1	FL2	FL3	FL4	FL5	POST/MIXED
simple one-piece sprung brooch with wire bow	B043-70, 104-192	131		3	7	73	19	29
arched bow brooch	B034	1				1		
bow brooch with knobbed foot (?)	B037	1				1		
bow brooch undet.	B036	1					1	
Nauheim brooch (?)	B028	1						1
eye brooch	B029	1						1
Hod Hill brooch	B030	1						1
annular brooch	B039-040	2				1		1
penannular brooch	B041-42	2				1	1	
crossbow brooch	B012-027	16				5	3	8
enamelled plate brooch	B033	1						1
hinged plate brooch with enamel decoration	B031-32	2		1				1
circular gilt brooch	B035	1						1
brooch undet.	B038	1				1		
<b>TOTAL</b>		<b>162</b>	<b>0</b>	<b>4</b>	<b>7</b>	<b>83</b>	<b>24</b>	<b>44</b>

Table 73: Overview of the brooch types and their numbers at the south-west corner site.

Another important brooch group is that of the crossbow brooches, represented by sixteen examples at the south-west corner site (CA.B012-027) (Table 74). They appear from fort level 4 onwards. The crossbow brooches recovered from fort level 4 belong to the early type and are all dated prior to AD 280/300<sup>146</sup>. Heeren and van der Feijst classify them as 'brooches with long hinge-arms' (Heeren and van der Feijst 2017, 175-178).

CROSSBOW BROOCH SW site	brooch type according to Keller 1971, Pröttel 1988, Riha 1979, Van Buchem 1941, Ettlenger 1973, Hull (Bayley and Butcher 2004), Jobst 1975, Böhme 1972, Swift 2000	date of brooch type	(fort) level of find context
CA.B012	Riha 6.4.3; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	4
CA.B013	Riha 6.4.2; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	4
CA.B014	Riha 6.4.3; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	4
CA.B018	Riha 6.4.3; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	4
CA.B020	Riha 6.4.4; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	4
CA.B015	Riha 6.4.2; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	4+5
CA.B019	Riha 6.4.3; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	5
CA.B016	Riha 6.4.4; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	5+post
CA.B017	Riha 6.4.2; Van Buchem I-II; Ettlenger 56; Hull T190-191A; Jobst 25; Böhme 28	< AD 280	post
CA.B023	Keller 1A; Riha 6.5.1; Van Buchem II-IIIa; Ettlenger 57; Hull T191B-192; Jobst 26; Swift 1	AD 280-320	5
CA.B021	Keller 1B; Riha 6.5.1; Van Buchem II-IIIa; Ettlenger 57; Hull T191B-192; Jobst 26; Swift 1	AD 280-320	5+post
CA.B022	Keller 1A; Riha 6.5.1; Van Buchem II-IIIa; Ettlenger 57; Hull T191B-192; Jobst 26; Swift 1	AD 280-320	post
CA.B025	Keller 1B-2B; Riha 6.5.1-6.5.2; Van Buchem II-IIIa-IV; Ettlenger 57; Hull T191B-192; Jobst 26; Swift 2i	AD 280-340	post
CA.B024	Keller 1B-2B; Riha 6.5.1-6.5.2; Van Buchem II-IIIa-IV; Ettlenger 57; Hull T191B-192; Jobst 26; Swift 2i	AD 300-365	post
CA.B026	Keller-Pröttel 2D; Riha 6.5.2; Van Buchem IIIb-IV; Ettlenger 57; Hull T192; Jobst 26; Swift 2iii	AD 300-365	unstratified
CA.B027	Keller 5; Riha 6.5.5; Van Buchem IVb-V; Ettlenger 57; Hull T192; Jobst 26; Swift 5ii	AD 350-415	post

Table 74: Overview of the crossbow brooches recovered at the south-west corner site. The difference in date between CA.B024 and CA.B025 is based on the typology by Van Thienen (2016).

<sup>145</sup> The more or less angular bow is the distinctive characteristic in comparison to the earlier 'Nauheim derivatives' (see further).

<sup>146</sup> Van Thienen (2011; 2016) dates this early type prior to AD 280; Heeren and van der Feijst (2017) conclude to a date between c. AD 240 and 280/300.



Based on the combination of archaeological, art historical and historical evidence Van Thienen (2016a; 2016b; 2017) has demonstrated that the crossbow brooch was in its initial phase an attribute to military dress owned by common soldiers. The crossbow brooches in question are the so-called 'light or early crossbow brooches' (cf. MacKreth 2011; Bayley and Butcher 2004; Swift 2000): examples CA.B012-020. During the 4th century, however, this type of brooch changed into an important attribute of the military and administrative body of the late Roman Empire and turned into a symbol of high ranking. These are the so-called *Zwiebelknopffibeln* (cf. Keller 1971) or 'developed crossbow brooches' (cf. MacKreth 2011; Bayley and Butcher 2004; Swift 2000). This late type is represented by examples CA.B021-027. Two of them, brooches CA.B026 and CA.B027, can even be identified as so-called 'heavy crossbow brooches' (cf. Bayley and Butcher 2004). At the end of the 4th century this brooch type finally became an attribute worn by consuls and members of the senatorial class and as such symbolised Roman power (Van Thienen 2016a; 2017a). Only three crossbow brooches recovered at the south-west corner site can be undoubtedly assigned to the 4th century. Although two were recovered from the post-Roman level (CA.B024; CA.B027) and one was found unstratified (CA.B026), all three must have belonged to fort level 5. Thirty-three of such late crossbow brooches were found at graveyard A and this significant number implies the presence of several high-ranked soldiers at the Oudenburg fort, during fort period 5A as well as during fort level 5B (see Chapter IV, Section IV.3.2.2).

The remaining fifteen brooches cover types which are represented by only one or a few examples. Some of them may have had a specific military connection. The 3rd-century arched bow brooch CA.B034 with knobbed plate on upper bow recovered from fort level 4 (only as a fragment, but a complete example was found at the north-east corner site Jacali) has a close parallel at the Aardenburg fort. It is believed to have been a typical British product with military connection (Van Thienen 2011b, supported by Heeren and van der Feijst 2017, 172). A military connection can also be attributed to the 3rd-4th century intaglio brooch CA.B035 with its eagle motif, although found in the post-Roman level as a dug-up item. It knows a close parallel at the Richborough fort (see Busche-Fox 1949, Pl. XXXV, 89). A military link has also be assumed for the penannular brooch Fowler (1960) type D (Heeren and van der Feijst 2017, 186), at the Oudenburg site represented by CA.B042. This type is dated to AD 250-350, and recovered from fort level 5 it may well have been a 4th-century example.

The hinged plate brooch with enamel decoration from fort level 2, CA.B032, and the presumed bow brooch with knobbed foot from fort level 4, CA.B037, both dated at the latest to the second half of the 2nd century AD, must have been dug up from fort level 1 or from pre-fort structures. Another five brooches were found in the post-Roman level. The possible Nauheim brooch CA.B028 (BC 50 – AD 100), the Eye brooch CA.B029 (second half 1st century AD), the Hod Hill brooch CA.B030 (1st – first half 2nd century AD), the hinged plate brooch with enamel decoration CA.B031 (2nd century AD?) and the enamelled plate brooch with a two-piece spring CA.B033 (2nd – early 3rd century AD) may all have been brought in together with the earth from outside the fort (see Chapter II, Section II.2.3).

#### 3.4.2. Buckles and belt plates

At the south-west corner site nine buckles and/or buckle plates were unearthed (CA.B001-008) (Plate CCIX). Only three items could be collected from the Roman level itself. Although Nicolay (2007) dates the buckle-type of CA.B002 in the mid-Roman period, most parallels, like e.g. in a mid-4th-century grave at Krefeld-Gellep (Pirling 1979, Taf. 79, 7) and in the late 3rd-century Neupotz assemblage (Künzl 1993, J 102) refer to the late Roman period, which is in line with the Oudenburg find context at fort level 5. Apart from an undefined, presumed, annular buckle, the other (presumed) belt element collected in the Roman level is the half of a hexagonal (?) plate with volute design with blue glass inlay CA.B008. No parallels were found in literature, but the form and the decoration recall the late Roman richly decorated chip-carved belt plates of e.g. graveyard A, grave 3. However, found in the fire layer dated to the end phase of fort level 4 (late 3rd century), this example would represent a very early type.

The other five buckles and/or buckle plates were not recovered from the Roman level itself, but their late date implies that they must be assigned to fort level 5. For the, badly preserved, late Roman rectangular buckle plate CA.B006 of type Simpson (1976) Group I parallels are known at graves 57, 68 and 104 at graveyard A (Mertens and Van Impe 1971). Special attention should be drawn to the buckle with attached plate CA.B005. The belt-buckle can be recognised as a very stylised version of buckle type Sommer (1984) Sorte 1, Form C, Typ e (buckle with four animal-heads and with rectangular plate). The buckle may be a more stylised version of the buckle with confronted dolphins of type Chadwick Hawkes and Dunning (1962/1964) 1A, of which a larger example was found in the late Roman levels of the Richborough fort (Lyne 1999a, 107: 4). For the incised leaf-decoration no parallels were found but it seems to imitate chip-carved leaf-decoration well-known on late Roman belts (see e.g. belt plate of grave 3 at Oudenburg graveyard A (Mertens and Van Impe 1971, Pl. II, 1a, 4a)). It is an attractive hypothesis that this item represents a local imitation. For the decorated, presumed ring-buckle CA.B004 no exact parallels were found but it may have formed part of a ring-buckle with trapezoid joining plate of which only rare examples are known, mainly in the Danube region (see Nowothnig 1970, 139-142). As such, this item could be related to the jewellery with connections to eastern regions found at graveyard A (see Chapter IV, Section IV.3.2.4 and Table 4). The oval frame buckle CA.B007, found unstratified, stands out by its very late date. This buckle can be dated at the earliest in the early 5th century but continued to be in use as a Merovingian type of buckle. It is therefore unclear whether it should be attributed to the latest fort inhabitants of the first third of the 5th century or to later newcomers.

### 3.4.3. Bracelets, finger rings and hair pins

Thirty-one bracelets or fragments of (presumed) bracelets were recovered (Table 75) (Plates CCXVII-CCXIX)<sup>147</sup>. Except for two fragments at fort level 3, bracelets occur mainly from fort level 4 onwards.

bracelet type	dating of type	cat.nos.	L1	FL2	FL3	FL4	FL5	POST/ 5+POST	unstrat.	TOTAL
snakeshead bracelet (Oudenburg 1) (local production)	3rd-4th C.	B237-248, 268			1	6	2	1	3	13
snakeshead bracelet (stylised animal heads) (import)	3rd-4th C.	B233-236				4				4
two-strand twisted cable bracelet	2nd-4th C.	B264, 266			1		1			2
three-strand twisted cable bracelet	2nd half 4th C.	B265					1			1
simple round-sectioned open bracelet	1st-4th C.	B255-257, 259, 267				3		2		5
simple flat bracelet with zigzag notched edge	AD 275-400	B261				1				1
grooved strip-bracelet with hook-and-eye fastening	AD 275-400	B262-263					1	1		2
bracelet undet.		B258, 260, 269				1		2		3
<b>TOTAL</b>			<b>0</b>	<b>0</b>	<b>2</b>	<b>15</b>	<b>5</b>	<b>6</b>	<b>3</b>	<b>31</b>

Table 75: Overview of the bracelet types and their numbers at the south-west corner site.

Only three specifically late Roman bracelet types are represented: the three-strand twisted cable bracelet datable to the second half of the 4th century, the simple flat bracelet with zigzag notched edge and the grooved strip-bracelet with hook-and-eye fastening, the latter both dated to AD 275-400 which is in line with their find contexts.

Seventeen bracelets can be identified as of the snakeshead type, a general term covering several subtypes (see e.g. Swift 2000a). The imitation of the form of a snake in bracelets was found in the earlier Roman period throughout the Roman Empire and in regions beyond the border as well. The type became gradually less realistic and evolved, especially outside the Empire, into very stylised types (Swift 2000b, 63; see Swift 2000a, 153 ff.). The four rutted bracelets CA.B233-236 with small (animal?) heads and found clustered in the large waste-pit OS 4980 of fort level 4 should be seen separately from the other snakeshead bracelets. They represent imported jewellery, in contrast to the locally made snakeshead bracelets which are characterised by their uniformity. With the latter the stylised snakeshead is only marked by longitudinal grooves; the rest of the bracelet is kept plain, as is best visible on the complete bracelets CA.B237 and B238. As evidenced by unbent and cut bracelet fragments, this type was made at the fort precinct (see further: Section 3.6.2) and it should be emphasised that the numbers of the finished bracelets of this type are as

<sup>147</sup> I would like to thank dr. K. Sas for the identification of the bracelets and her feedback on the Oudenburg jewellery in general.

such an overrepresentation. A similar bracelet was found in the Belgian coastal plain at the Roman rural site at De Panne, generally dated to the second half of the 1st – first half of the 3rd century AD (De Loë 1939, 148). A very close parallel is known from Tongeren, Koninksem (SW graveyard of Tongeren) where it was found as stray find and therefore only generally datable to the 2nd to 4th centuries (De Laet 1980, nr. 231). Very interesting in light of the coastal context are the two snakeshead bracelets found in the silted up layers of the harbour of *Forum Hadriani* (Voorburg) and which show close similarities to type Oudenburg 2, discussed below (Section 3.6.2). At Voorburg, they have been dated on typological grounds to the late 2nd – early 3rd century, based on the typology by Riha (1990, 56) (Hoss 2014, 622).

The small assemblage of eight finger rings displays a variety of types (Plate CCXX). The two key-rings CA.B275 and B276 are to be considered together with the lock items recovered from their respective find context levels 3 and 4. Worth drawing attention to is finger ring CA.B271. It was most likely recycled from part of a zigzag notched bracelet, a popular type in the second half of the 3rd and 4th century (Sas 1999, 174-175). Swift has demonstrated for *Britannia* that the modification of late Roman bracelets and their subsequent re-use as smaller rings was part of a wider phenomenon of re-use, repair and recycling from the later 4th century onwards (Swift 2012). Being recovered from fort level 5, the Oudenburg ring can probably be seen as an illustration of this phenomenon. The finger ring with deteriorated glass bezel CA.B272, collected as a stray find, has a parallel in grave 191 at graveyard A which can be dated after AD 388 (Mertens and Van Impe 1971, Pl. LIX: 9) and as such is associated with fort level 5B. Also finger ring CA.B273, recovered from the post-Roman level, belonged to fort level 5B; this late type has been dated by Clarke (1979) in the period AD 360-370/380.

The copper alloy hair pins (Plate CCXX) are to be considered together with the bone and jet(-like) hair pins. Cool (1990, 150) has pointed to pictorial and burial sources which bear witness of the use of metal hair pins to secure and decorate the hair arrangements of women and girls. At the Oudenburg site they only occur from fort level 4 onwards. Only hair pin CA.B280 with the faceted cuboid head is of an undoubtedly late Roman type, and this is in line with its find context at fort level 5. Hair pins CA.B281 and 287 show types which were in use throughout the Roman period but which were very popular in the late Roman period (Cool 1990, 151-154). Both were recovered from fort level 5.

#### 3.4.4. *Body care*

A few probes, tweezers and a mirror refer to body care (Plate CCXXI). Whether the four scoop probes CA.B289-292 should be seen as medical instruments or as toilet implements in general is unclear. It is tempting to associate them with the military hospital of fort level 2 and to consider them as dug-up items from that level. The ear probe CA.B293 and the tweezers CA.B294-296 were definitely multi-purpose (cf. Riha 1986, 33) and could well have served for the personal hygiene of soldiers<sup>148</sup>. The small round, slightly curved, plate CA.B288 can be identified as a hand mirror, originally held in a wooden frame. At least one side must have been originally silvered or tinned to achieve a reflective surface. According to Deschler-Erb (1996, 65) these framed mirrors were only in use in the 1st and 2nd centuries AD. However, the good preservation of the Oudenburg find in the infill of the fort level 4 well OS 22926 suggests a longer use. Lloyd-Morgan (1981) concluded from burial finds that such mirrors were mostly in use by women.

#### 3.5. *Domestic life*

Two hundred items are related to domestic life. Four spoons (Plate CCXLV) and 118 vessels or vessel fragments (Plates CCXXXIV-CCXLIV) belong to the general culinary atmosphere. Sixty-one

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<sup>148</sup> At graveyard A graves 64 and 71 both contained a tweezer but the other grave goods nor the skeleton remains were conclusive about the gender of the deceased.

elements of furnishing, four chest or vessel (or helmet?) handles<sup>149</sup> and one decorative fitting of furnishing (or chariot?) can possibly be added (Plates CCXXVII-CCXXXIII). Seven items can be classified as household utensils. Four items represent lighting devices.

Bronze vessels were considered as luxury wares since there was a considerable amount of costly metals involved in producing them. They had a long life-span and were likely favourable items for remelting when worn or damaged. Such use as scrap metal and the need for repair of such vessels are likely explanations for their predominant presence at fort level 4. The 22 loose repair plates (CA.D/C121-124, 126, 128-141, 153) recovered from the site, not surprisingly all from find contexts belonging to fort level 4 or later levels, should most likely be seen as related (Plate CCXLVI). They were probably used to repair vessels (cf. e.g. Bienert 2007, 157) at the workshops of fort level 4.



Fig 108: The decorated jug recovered in the northern sector during Mertens' excavations in 1976 (Unpublished material, Archive NDO J. Mertens, Flanders Heritage Agency) is an illustration of the high-quality bronze tableware of the army unit. It can be identified as a 'Bauchige Kanne mit trifoliarer Mündung' Bienert (2007) Form 4, type Millingen, with the

<sup>149</sup> Of certain drop handles it cannot be determined whether they should be identified as helmet carrying handles or as furniture handles (see Allison 2013, 69 with references).

attachment showing a mask, and is generally dated in the second quarter of the 1st – late 3rd century AD (Bienert 2007, 38).

The large amount of sieve fragments is interesting, although misleading: they probably belonged to a lot less individuals. Nevertheless, the number of sieve or dipper handles with splayed terminals and in most cases with fin-shaped side-lobes do point to a significant use of wine dippers and strainers (Plates CCXXXV-CCXXXVIII). Apart from some body fragments at fort level 2, the sieve and dipper fragments mainly occur at fort level 4. Based on the number of handles, at least six sieves and dippers can be attributed to fort level 4, at least three to fort level 5. Colanders were basin-shaped with perforations arranged in patterns and with flat handles. The Oudenburg sieves represent the type with cylindrical body, sharp transition between body and slightly rounded base, and rather short handle; this type is generally dated by Bienert (2007, 98 and 106) to the 3rd-4th/5th centuries. The form of the sieve was adjusted to that of the dipper so the colander could fit into the *patera* as a set and they could be picked up as one vessel (Allason-Jones and Miket 1984, 152). They were widely in use and Koster noted that, in contrast to earlier burials in which they occurred solely as drinking service, by the 3rd century dippers and strainers appeared to have become more general household vessels (Koster 1997, 46). By then they were probably no longer only used in the preparation of wine (for sifting defilements such as seasoning from imported wine prior to consumption or for the cooling of wine), but in many kitchen activities such as purifying, soaking and boiling of food (Bienert 2007, 98).

The Westland type of cauldron CA.D088 and the Henmoor bucket CA.D090-091 – to the latter type several other bucket elements belong, all from fort level 4 or later levels – represent wide-spread vessel types with a main popularity in the 3rd century (Plates CCXXXIX-CCXL) (cf. Koster 1997, 71 for the Westland cauldron; cf. den Boesterd 1956, 44-45 and Bienert 2007, 146 for the Henmoor bucket). The complete cauldron CA.D088 was found in the large waste-pit OS 4980 of fort level 4 with a plate with mussel-shaped ribbed body set inside, and next to the Henmoor bucket CA.D090-091, clearly a deposition with a specific meaning.

Knives to which the copper alloy handles CA.D066-067 and the scabbard CA.D065 belonged, represent miscellaneous (household) utensils (Plate CCXXXIII), as is also the case for the recovered iron knives IR.D008-013 (see further). The specific function of the sewing needles CA.D068-070 is neither clear (Plate CCXXXIV); they may have been personal tools for the repair of clothing. The rough appearance of item CA.D071 seems to indicate that it concerns an unfinished product; found at the workshop area of fort level 4, it may well have been produced there.

Items CA.D001-003 and possibly also CA.D004 represent lighting devices (Plate CCXXV). Together with a few iron lighting instruments (see further) and one possible oil lamp in Lower Nene Valley ware (fine wares cat. no. 96: see Appendix 11, Section 3.6), they represent a striking low number of lighting devices at the site. It may assume that other forms of lighting existed. The possibility that small ceramic bowls and dishes were used to function as lamp holder should be further investigated, as several examples of these forms in North-Menapian handmade pottery and reduced wheel-turned wares are characterised by heavy rooting on the inside of the vessel.

Furniture elements and accessories are well represented at the site. They comprise handles, studs, decorative nails, hinges, fittings and keys. The copper alloy elements are mainly attributed to small furniture, like cupboards, chests, caskets and trunks (see e.g. the reconstructions of caskets by Riha (2001)). Lockable small chests or caskets were used for storage and safe-keeping of valuables, such as money, jewellery and documents. In most cases, small chests or caskets had refined decorative handles, such as for example the so-called dolphin handle CA.D027-029 (Plate CCXXVIII). Another widely distributed handle type is that with a bulge in the middle of the handle bow (see Plate CCXXIX) which can also be related with small, thin-walled chests (Riha 2001, 28-29). The sheet fittings CA.D045, 047-51 represent box or chest fitting plates (Plate CCXXX-CCXXXI). They could be part of the lock fitting plate or of another decorative panel, similar to the lock plate but without lock hole and used as counterpart of the lock plate (cf. Riha 2001, 64-65). Different types of studs existed. Studs CA.D005-008, 011-017, 144-146 are furnishing studs, characterised by a rectangular shaft and a large, round head (Plate CCXXVI-CCXXVII). Some shafts have a hole through their end, presumably for extra fixture using a small nail. Studs were used to



attach the lock fittings and decorative fittings to chests and caskets (Allason-Jones 1985, 102<sup>150</sup>; Riha 2001), in some cases to other furniture objects, like door panels or larger furniture (Quérel and Feugère 2000, 160). The copper alloy keys (CA.D052-057) (Plate CCXXXII), and certainly the key-rings (CA.B275 and B276) (Plate CCXX), also belonged to lockable chests or caskets.

### 3.6. Production of copper alloy items

The evidence at fort level 4 clearly points to metalworking at the workshops of the south-west corner area of the fort during the late 3rd century. Within the context of bronze working, definitely brooches and bracelets were locally produced<sup>151</sup>. Of many other items the production and certainly the repair can be assumed at these workshops. A quick-scan with a mobile XRF<sup>152</sup> of a selection of objects revealed that (all?) copper alloy products made at the Oudenburg workshops consisted of brass<sup>153</sup>, a copper alloy containing more than 15% zinc and as such easily beaten and lengthened and therefore very suitable for making one-piece sprung brooches, bracelets and probably several other objects. This alloy was also popular for its colour: when well-polished, brass will much resemble gold (Guillaumet 1996, 99; see also Sas and Vilvorder 2002). Assumed non-locally made objects, at least so far as a sample of items has shown, were made in bronze or another copper alloy.

#### 3.6.1. Brooch production

At the south-west corner site in total 123 brooch items can be identified as semi-manufactures and waste products of the production of simple one-piece sprung brooches with wire bow (Plates CCXV-CCXVI). They represent the different stages in the production process. Only one type of brooch was made at Oudenburg: the simple type in one piece, made of one piece of wire, characterised by a bilateral four-coil spring, an internal chord and a rod bow (see the finished brooches above: Section 3.4.1). Pit OS 7949, containing several of these brooch semi-manufactures and waste products, even pinpoints the localisation of (one of the workshops of) this brooch production at Unit I, at its initial phase datable to c. AD 260-270.

At the site 131 complete examples or fragments of simple one-piece sprung brooches with wire bow as finished item were recovered (see Section 3.4.1; Plate CCXIV). The completely preserved brooches vary in size from 3.3 to 7.1 cm, with the largest portion having a length between 4.0 and 5.0 cm. The only decoration which was applied on this type of brooch is one or more series of incised lines or small grooves across on the bow, occurring on fifteen brooches and on one untwisted brooch item (CA.B/C88). This decoration in fine grooves is of much interest, since it could only have been made by a small chisel by rolling the rod<sup>154</sup>; it was therefore already applied before the brooch was twisted (which is confirmed by item CA.B/C88).

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<sup>150</sup> However, Allason-Jones warns about the multipurpose function such items could have: for attaching lock plates to boxes, but also as pommels for daggers, as hinges for dolabra sheaths, and as furniture or door studs (Allason-Jones 2011a, 8). The large quantity of furniture elements at the site and mainly the uniformity of the 'bell'-studs make it very likely that these studs should be related to furnishing.

<sup>151</sup> A first overview of the Oudenburg brooch production has been published in 2009 (Vanhoutte 2009).

<sup>152</sup> With thanks to L. Linders, conservator-restorer at the Flanders Heritage Agency, for conducting this analysis.

<sup>153</sup> An archaeometrical analysis within the context of a bachelor thesis of a few copper alloy slag samples, however, concluded on the contrary that the copper alloy processing did not involve brass (Plas 2016). Plas pointed to the difficulty in drawing clear conclusions from the chemical composition of the artefacts as they all appeared to be more or less contaminated by other materials such as sand, clay, crucible material, probably through their burial in the ground. How the difference between the results from the semi-manufactures and end products on the one hand and the bronze slag on the other hand should be explained, can only be resolved through further analysis.

<sup>154</sup> With thanks to metal specialist J. Van Cauter (Erfpunt, Onroerend Erfgoed Waasland) for pointing out this aspect to me.





Fig 109: Rudimentary semi-manufactures (top left), still unwound brooches (top right) and brooch production waste (below) from pit OS 7949, fort level 4.

In literature these simple brooches are very often designated as 'Nauheim derivatives' and are then dated, often too narrow, to the 1st century AD (see e.g. Bayley and Butcher 2004, 147). Heeren and van der Feijst (2016, 124: type 45a8) acknowledge the many resemblances with the late La Tène wire brooch, but point to some minor details by which they can be differentiated, like the more angular bow. The type has already been recognised by Riha at military and civilian sites in Gaul and in the Rhineland until the late 3rd century AD<sup>155</sup> (Riha 1994, 56). Böhme and Riha call them '*Soldatenfibeln*' ('soldiers' brooches'; since they are so common in army camps) but they note that they were not exclusively reserved for soldiers. This has also been demonstrated by Heeren and van der Feijst (2017, 126) who point to the many finds at civil settlements in the Low Lands. It seems to have been the most common type there in the 2nd century AD (see Waasdorp and Kersing 1999, 74<sup>156</sup>; Heeren and van der Feijst 2016, 126). Böhme already mentioned that this type was the dominant form in the first half of the 2nd century AD and especially popular in the western provinces (Böhme 1972, 13-14). The production of these bow brooches at the Oudenburg fort *intra muros* gives evidence that this simple one-piece sprung brooch continued to be made at least until the late 3rd century. Of the 123 items which can be undoubtedly identified as brooch production waste, 101 examples belong to fort level 4. Only one fragment of an untwisted brooch is assigned to an earlier level (fort level 3), but may be interpreted as an intrusive find (CA.B/C193).

The initial forms of the brooch semi-manufactures show very rudimentary rods on which the fastening device of the brooch has been slightly roughed out, with little to differentiate the future bow and pin (CA.B/C071-073; CA.B/C074-079 represent one stage further). Later stages in the

<sup>155</sup> Such brooches have been found for example at Saalburg and Zugmantel (Böhme 1972, 13-14) and at Augst and Kaiseraugst (although with a more angular bow) (Riha 1994, 56-59), classified there as 'Almgren type 15'.

<sup>156</sup> These bow brooches from the native settlement of the Cananefates on the Scheveningseweg, dating to the first half of the 2nd century AD, were decorated with series of incised lines, just like the brooches from Oudenburg.

production process yielded fully beaten-out but still unwound brooches (CA.B/C080-095), next to fragmentary waste products such as CA.B/C96-103.

Identical wire brooches were found at the Aardenburg fort (cf. Besuijen 2008, Pl. VII-VIII), without indications for brooch production at the site though. Since it concerns such an 'easy' production, a local production at the Aardenburg fort can be supposed, although so far invisible in the archaeological record.

Semi-manufactured brooches are known from the Raetian fort at Moosberg (Murnau) and at the 1st- and 2nd-century fort of Brough-under-Stainmore (Verterae) (UK). Traces of workshops with semi-manufactured brooches and numerous 2nd-century end products have been excavated at Kirkby (Bravoniacum), Traprain Law and Richborough as well (Gralfs 1994, 41, 43). Failed castings of brooches are known also from the garrison towns of Regensburg, Dalkingen, Pfünz, Eining, Schützen am Gebirge, Brigetio and Timgad (Gshwind 1997, 618). Worth drawing attention to here, although not as evidence for brooch production but as another example of the production of small military material at a fort in the North Sea frontier region, is the mould with the remains of a scabbard runner recovered from the site of the presumed *castellum* at Scheveningseweg (near The Hague, NL) (Waasdorp 2012, 137).

None of the above mentioned examples of brooch production can illuminate how the Oudenburg brooches were made, as they all relate to the casting of brooches in moulds. The best reference for evidence of a production process comparable to that at Oudenburg comes from the much earlier, civilian context of the *oppidum* of Bibracte<sup>157</sup>. Excavations at Bibracte (1865-1904) brought to light brooches and brooch-making waste, studied in detail by Guillaumet (1993, 5). Between 1984 and 1992, a roofed-over bronze worker's workshop was excavated immediately outside the rampart of the *oppidum*, covering an area of 35 m<sup>2</sup> active between BC 30-25 and c. AD 10 (Pernot 1998, 52 and 54-55; Montadon 1997, 6-7; Guillaumet 1996, 93-96). Finds of brooch-making waste and semi-finished brooches made clear that these were produced on the spot. Comparable brooch finds are known from Basel, Bern, Argenton-sur-Creuse and Mailhac dans l'Aude (Guillaumet 1993, 10-11). Brooches in all stages of production were also found at the artisan's quarter of a native Germanic settlement of the early Roman period near Warburg-Daseburg in Westphalia (Germany) (Günther 1983, 13-18, 21-23 and 30). The similarity between the Oudenburg output of the later 3rd century and the finds from Bibracte in which the different stages of hammering are visible (Fig. 110), is particularly notable.

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<sup>157</sup> Closer by there are indications of brooch production at a bronze-caster's workshop at Blicquy (Amand 1975), but the modest number of brooches and the diversity of types offer little evidence with regards to the production process.

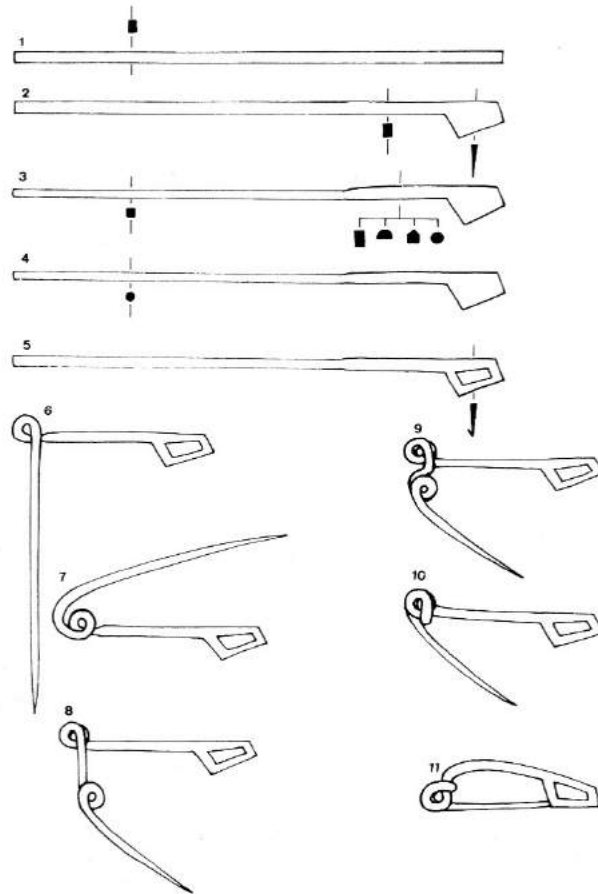


Fig 110: Schematic overview of the making of a bow brooch in one piece with an internal chord as could be deduced from the archaeological evidence at Bibracte. From: Guillaumet 1993, Pl. 7.

### 3.6.2. Bracelet production

Besides the 31 (finished) bracelets, six bracelet fragments clearly represent waste products of bracelet production (see CA.B/C249-254) (Plate CCXVIII). The very corroded, but presumed bracelet waste product CA.B242 – mind the abnormal curve of the fragment – was recovered from the pit OS 7949 belonging to the initial phase of workshop Unit I in which also a lot of brooch production waste was found. It indicates, together with another three semi-finished bracelet products at fort level 4 (CA.B/C249, 253-254, and probably also B/C250), that these bracelets were manufactured at these workshops already during the first phase of fort period 4 *i.e.* in the 260s and/or in the following decade. All but one item are defined by shallow longitudinal grooves at the heads while the rest of the bracelet is left plain; this subtype is called Oudenburg 1. A waste product of type Oudenburg 1 was also found in the 1970 trench more to the north at the west side of the fort (unpublished material NDO Archive J. Mertens). The cut, unbent bracelet fragment CA.B/C251 shows the same type and form but distinguishes itself by its more complex, detailed, groove decoration; it is therefore classified as subtype Oudenburg 2, a more refined version. When compared to the typology of Augst and Kaiseraugst, this type is closest to the *Schlangenkopfarmringe* of type 3.10.2 'bandförmig, mit rautenförmigen Köpfen' (Riha 1990, 56).

### 3.6.3. Slag material

Besides the semi-manufactures of the bronze working activities at the workshops of fort level 4, another 69 items of the copper alloy assemblage can be identified as bronze working waste in the form of either melting copper alloy or copper alloy slag (Plate CCXXII). Apart from a fragment of a melting pot of level 1 (CA.C04) and a few small fragments from fort levels 2 (one item) and 3 (four items), twenty-one items can be assigned to level 4, likely to be increased (at least) by nine with

the items found in level 4+5. Worth drawing attention to are the findings whilst examining nineteen cases of block-lifting (of items that appeared to be too corroded on the field) from the burnt down workshop Unit V. While the Xrays revealed that these items were mostly copper alloy sheets and fittings which could not be identified further, in the attached earth they also pointed to the presence of bronze droplets and trails, casting waste from the spot. As mentioned in Chapter II, Section II.4.6.2.c, an archaeometric study on a small sample of 'bronze' slag material (Plas 2016) has given additional evidence that copper alloy was not only worked but also cast at the workshops of fort level 4.

### 3.7. Other crafts

Most of the tools were made in iron (see further). In the Oudenburg copper alloy assemblage only implements related to textile working are represented. Sixteen netting needles were recovered (CA.D07-22), characterised by both ends as a fork-like feature (Plate CCXXIII). It is generally accepted that they were presumably used to repair fishing nets; however, Wild (1970, 73) and Deschler-Erb (1996, 46) also mention other specific weave and hand-knotted work as possibilities. The presumed weaving combs CA.D23-24 may be related to the latter (Plate CCXXIV). Crummy (2011, 86) interprets the function of netting needles as formers or spacers around which the net was knotted to produce a mesh of constant size. With the large amount of lead net weights recovered from the site it is very likely that the netting needles are related to fishing activities. Fish remains are not abundantly present at the site and the striking total absence of gadiforms indicates that there was no fishing in open sea. In contrast, flatfishes dominate and this implies that fishing mainly occurred in coastal waters, tidal channels and mouths of creeks, hence not far away from the fort (Ervynck *et al.* 2017). Interestingly, the netting needles revealed to be of brass, just like the locally made brooches and bracelets, and in contrast to the other (imported) objects in bronze or another copper alloy. This presumably indicates that also the netting needles were produced at the Oudenburg workshops, the more since they appear only from fort level 4 onwards (with ten examples in the workshop area).

### 3.8. Trade and exchange

Fourteen items can easily be recognised as belonging to steelyards (Plates CCXLIX-CCL). Both fine steelyards (CA.G02-06) as large examples with wooden measuring bar and bronze ends (CA.G05-06, 08-09) (cf. Garbsch 1994; Franken 1989, 100-102) are present. The steelyard finds belong to fort level 4 and later levels. The same is true for eleven iron items, recognised as parts of weighing instruments; they also occur from fort level 4 onwards, with some in later levels (see further). Most likely the steelyards are linked with the workshop activities at fort level 4. The fine steelyards may be linked with the metalworking activities as these must have involved the measuring and weighing of certain products. The large steelyards may well have been related to the cereal stocks which appear to have been close by (see Chapter II, Section II.4.6.2.c). Were the steelyards used to make rations for the soldiers? It is very likely, though, that they represent trade or another kind of exchange and that the workshop area also had a market function, as a lot of products in copper alloy were made and repaired there.

### 3.9. Communication

Two copper alloy styli (CA.E01-02) and one handle of a wax spatula (CA.E03) refer to communication (Plate CCXLVII). The two items found in the Roman level both belong to fort level 4. Two more styli were made in iron; one of them was also recovered from fort level 4, the other in the post-Roman level (see further).

### 3.10. *Spiritual life*

A remarkable find is the cymbal (CA.E/F05) recovered from the pit to the south of the large waste-pit OS 4980 of fort level 4, more specifically from a layer which also filled in the OS 4980 context in the final phase of fort period 4 at the end of the 3rd century (Plate CCXLVIII). Only a few of such cymbals are known; the nearest example was found at Famars (see Fort and Tisserand 2011). Cymbals were used in pairs, one in each hand. This music instrument was associated with religious ceremonies, mainly to rituals related to mother cults. One of the two cymbals found at Autun and the cymbal known at Grozon, both in France, bear dedications, one to an indigenous goddess, the other to Cybele (Fort and Tisserand 2011). Found at fort level 4 in a layer representing the end of the workshops, it may have been an object that needed repair. Nevertheless, the cymbal points to the practice of a mother cult at the fort in the late 3rd century AD. Two statuettes, the foot of a third one and a possible fourth statuary fragment are also related to spiritual life. They are discussed in Appendix 26.

### 3.11. *Immovable property*

Most elements belonging to immovable property would have consisted of iron. One copper alloy item can undoubtedly be attributed to this domain, namely the water tap CA.I01, recovered as stray find (Plate CCLVIII). It may have once belonged to the hydraulics of the bath house of fort level 5A. The same link is a possibility for item CA.K01 of fort level 5 (Plate CCLX). This large, thick copper alloy sheet fragment with the edge enclosed in a thick iron strip may have been part of a machine, perhaps related to the water heating system of the bath house.

## 4. The iron assemblage

### 4.1. *The iron assemblage in general*

To manage the considerable amount of the iron assemblage (IR), the 46,083 iron items collected at the south-west corner site were first classified according to the following categories<sup>158</sup>: nails (and fragments) and clamps (and fragments) (N), undetermined fragments ((fragments of) rods, bars, shafts, stems, sheets, amorphous pieces) (B), shoe sole parts (shoe spike clusters) (S), slag material (M) and 'representative' items ('objects') (BS)<sup>159</sup>. The group of nails and clamps, not surprisingly, represents the largest part of the assemblage, accounting for a total of 69.6%<sup>160</sup> (Fig. 111). The group of the 'representative items' accounts for 792 items or only 1.7% of the assemblage. In total, 812 items were selected to insert in the presented catalogue (Addendum 7; Table 76; see Plates CCLXII-CCCXXIV). They comprise not only the 'representative' items, but also a selection of (large) nails, nail clusters and representative shoe soles or fragments as these deserve further consideration. From the 812 catalogued items, 211 belong to post-Roman levels or levels mixed with post-Roman material. From the latter, 76 items can be assigned to the transition level between the Roman and post-Roman level and were either still situated at the top of fort level 5 or almost certainly dug-up from this level.

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<sup>158</sup> A first ranging of the iron finds was made with the naked eye. Due to the often severe corrosion, it was necessary to Xray c. 3/4 of the material to come to a correct determination.

<sup>159</sup> *I.e.* others than in the preceding categories: nails, shoe sole clusters and metal slags (iron) can evidently also offer a lot of information and can be 'representative': see *e.g.* the considerable diversity in nails (*cf.* Guillaume 2005 for the potential of the study of nails from the Roman settlement of Tienen (Flemish Brabant, B)) and iron slag material representing different stages in the metalworking process.

<sup>160</sup> In all counts, fitting pieces and fragments of one individual are counted as one.

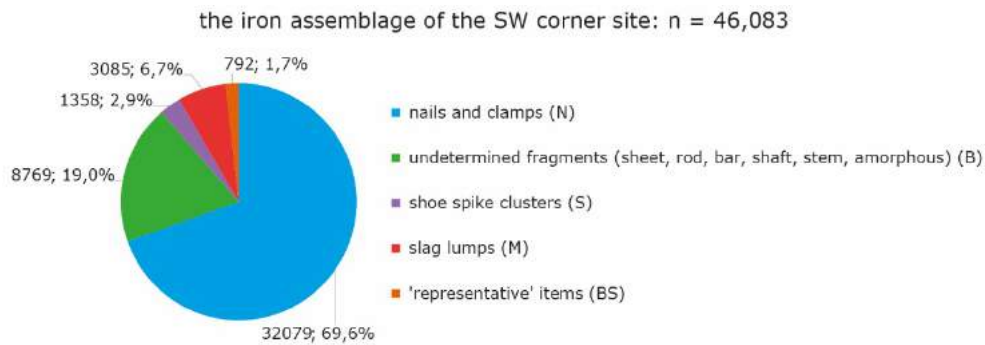


Fig 111: Overview of the find classification groups of the entire iron assemblage, dated to the Roman period, of the south-west corner site.

It is not surprising to notice that the overall iron counts increase through time (Fig. 112). While the first three fort installations knew a more short-termed occupation, expanding over several years though, the fort occupations of fort level 4 and 5 covered a much larger time-span and hence more activities, evidently resulting in a larger iron assemblage. In addition, also a significant residual factor must be taken into account. Although this can hardly be verified within the iron assemblage of which most of the finds only know large dating ranges, the high degree of residuality as evidenced in the ceramic assemblages, evidently has also determined the other find assemblages, such as the iron assemblage. Also the degree of preservation would have played its part. The very low number of representative iron items in the first three fort levels (Fig. 113) probably explains itself largely by the digging up of items and by a bad preservation of the iron resulting in more fragmented, and hence undetermined, finds.

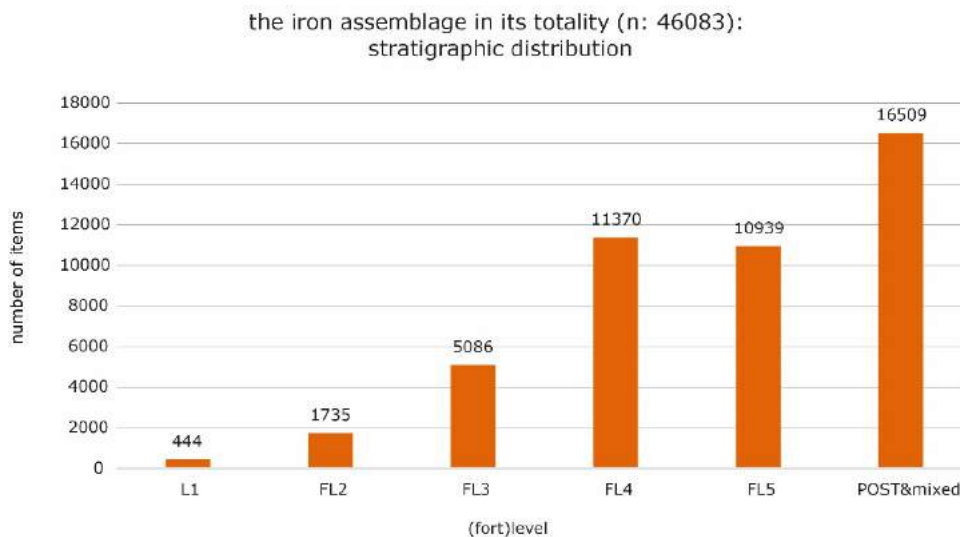


Fig 112: Iron items at the south-west corner site and their distribution according to the stratified evidence.

The slight decrease of iron items at fort level 5, clearly visible in the nail counts (Fig. 112-113), can be related to the functional implementation of this south-west corner during that period. The bath house of FL5A which was bordered by a road to the south, was surrounded to the west and the north with open space. During the last fort occupation (FL5B) the area served to coral horses or pack animals. Both uses of the area evidently represent less constructional elements, resulting in a lower number of structural fittings. The nail count is still very high though, so it can be assumed that certainly at this level 5 a lot of residual, dug-up material is included in the assemblage (definitely nails would be easily dug up), an observation that could also be made when looking at the ceramic assemblages.



the general find classification groups of the iron assemblage (n: 46,083):  
distribution according to the stratified evidence

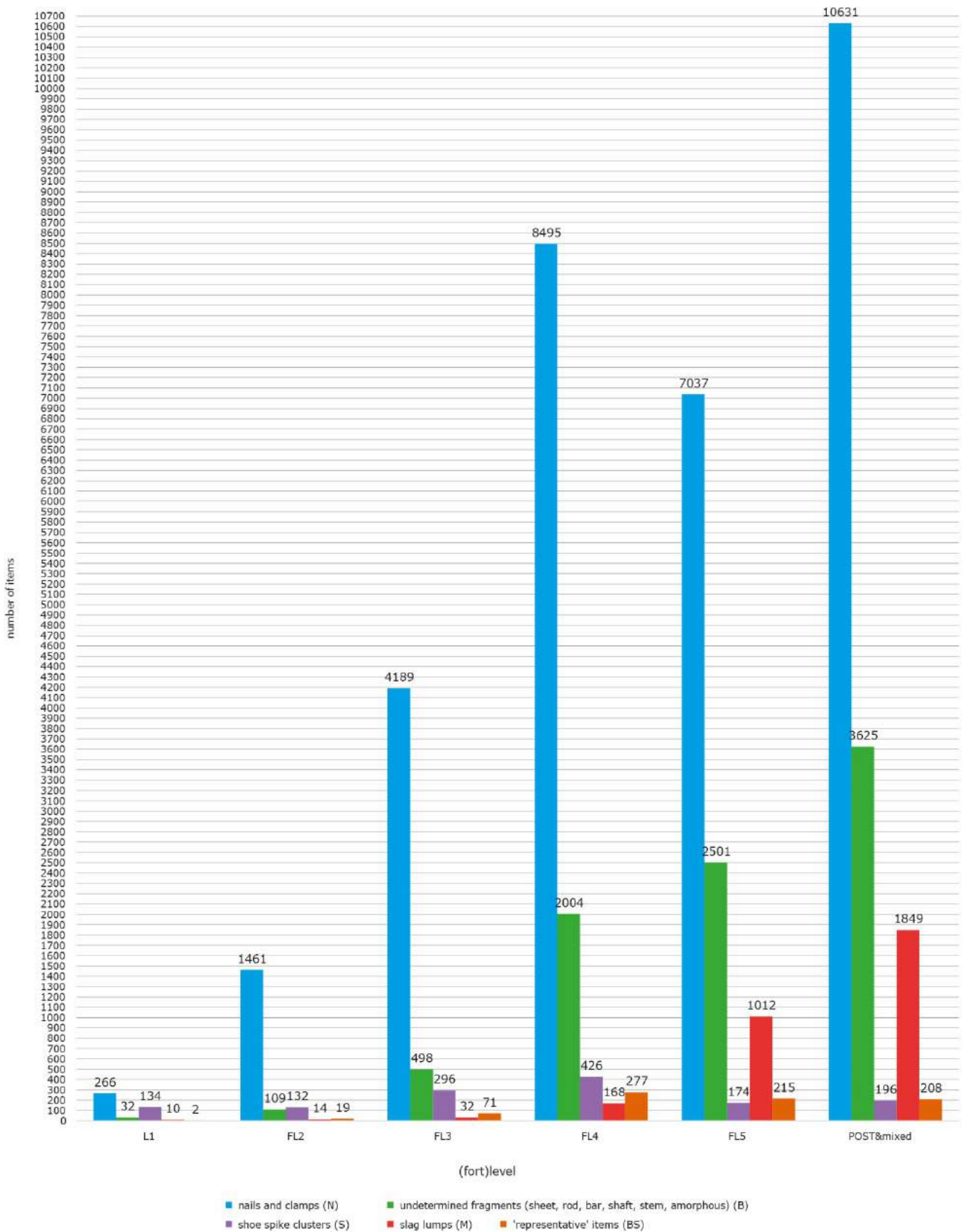


Fig 113: The find classification groups as represented in the iron assemblage of the south-west corner site according to the stratified evidence.

find domaine / category	item (found complete or as fragment)	cat. nos.	TOTAL n	L1	FL2	FL3	FL4	FL5	POST + MIXED
<b>military life</b>									
<i>military equipment</i>									
	scabbard chape	A14	1			1			
	spear(?) ferrule	A15-16	2					1	1
	spearhead	A17-35	19		3	3	6	6	1
<i>military dress</i>									
	armour								
	-lorica segmentata	A01-02	2					2	
	-lorica squamata	A03	1				1		
	-lorica hamata	A04-13	10				2	3	5
<b>transport</b>									
<i>equipment related to vehicle</i>									
	linch pin	H03-07	5				1	3	1
	axle cap	H08-H09	2				1	1	
	cart bolt	H10	1			1			
	wheel hub	H11	1					1	
	yoke ring	H12	1				1		
	decorative cart fitting?	H13	1				1		
	cart fitting (?), of yoke?	H14-15	2						2
	? beam binding	J096, 098, 100	3				2		1
	? beam fitting	J097	1				1		
<i>equipment related to animal</i>									
	harness bell	H16-19	4				3		1
	bridle bit	H20-21	2				1		1
	hipposandal	H01	1					1	
	horse trappings	H02	1				1		
<i>navigation?</i>									
	? boat or ship stake (or fish spear?)	H/C22-23	2				1	1	
<b>crafts - production (tools and products)</b>									
<i>leatherworking</i>									
	cobbler's last	C68-70	3		2				1
	awl	C71	1				1		
	awl (may also be used for woodworking)	C72	1						1
<i>textileworking</i>									
	wool comb	C73-82	10			1	4	3	2
<i>metalworking</i>									
	anvil	C01	1				1		
	hammer	C02-09	8			1	4	1	2
	chisel	C10-13	4					4	
	chisel (may also be used for woodworking)	C14	1						1
	nail production clusters	C/D85-89	5			3	2		
<i>woodworking/carpentry</i>									
	axe	C15-23	9			2	3	2	2
	adze	C27	1				1		
	adze (or hoe?) (may also be used for agriculture/horticulture)	C24-26	4				4		
	draw-knife	C28, C38	2				1	1	
	chisel	C29-34	6				1	2	3
	saw	C40-45	6				3	1	2
	gouge	C35	1					1	
	drill-bit	C36	1						1
	scraper	C37	1						1
	awl	C46-47	2		1	1			
	saw file?	C39	1				1		
	? scraping-knife	C48-49	2			1	1		
<i>stoneworking or agriculture</i>									
	pick or pickaxe	C51	1						1
<i>agriculture</i>									
	hoe	C50	1						1
	pickaxe	C52	1						1
	ploughshare	C53-55	3				1	2	
<i>agriculture or construction</i>									
	spade/shovel	C59-67	9			1	3	3	2
<i>agro-pastoral life</i>									
	pitchfork	C56-58	3					3	
<i>grain processing</i>									
	dosing cone (for quern installation)	C83	1				1		

find domaine / category	item (found complete or as fragment)	cat. nos.	TOTAL n	L1	FL2	FL3	FL4	FL5	POST + MIXED
<b>personal life</b>									
<i>ornament and dress</i>									
	buckle	B01-03	3				2		1
	shoe sole (element)	B04-B12	9		1	2		6	
<b>social life / exchange</b>									
<i>writing implements</i>									
	stylus	E01-02	2				1		1
<b>trade, exchange</b>									
<i>weighing instruments</i>									
	steelyard component	G01-07, 11?	8				5	2	1
	weight	G08-10	3				1		2
<b>domestic life</b>									
<i>culinary activity (food preparation)</i>									
	cleaver (for butchering meat)	D001-007	7			1	5	1	
	ladle	D053	1						1
	bar for grill or firedog	D054-055	2				1		1
	cauldron	D061	1					1	
	cauldron escutcheon	D062	1				1		
	chain for cauldron	D056-058, 063	4				3	1	
	hook for cauldron	D059-060	2				2		
<i>furnishing/vessels</i>									
	handle	D020-040, 044-048	25			1	8	11	5
<i>vessels</i>									
	bucket handle	D041-043, 047	4				3	1	
<i>lighting</i>									
	lamp	D049	1				1		
	candlestand	D050	1				1		
	candlestick or lamp	D051	1						1
	lamp hook	D052	1				1		
<b>domestic life - immovable property</b>									
<i>locks</i>									
	padlock	D014-17	4			1		2	1
	padlock chain	D018	1					1	
	lock (element)	D/1064-104	42			6	17	14	5
<i>keys</i>									
		D/1105-137	33	1		1	12	8	11
<b>immovable property</b>									
<i>door framing</i>									
	pivot lining	I01-03	3				2		1
	door hinge	I04	1				1		
<i>gate framing</i>									
	striker plate	I05	1						1
<b>domestic life - multipurpose</b>									
	knife	D008-013	6			2		1	3
<b>(structural) fittings</b>									
	chest/box/door binding	D019, J087	2		1		1		
	fitting miscellaneous	J051, 053, 093, 454	4	1				2	1
	binding	J050, 085, 086, 090, 095, 099, J079-084, 086, 088-089, 101-155,	6			1	3	2	
	loop-hinge	305-310	79	1	1	5	22	16	34
	collar	J091-092	2						
	door-hinge?	J094, 156	2			1			1
	double-spiked loop (with or without attached link)	J054-057, 059-066, 072-076, 157-304, 431-440	177	1	1	20	63	48	44
	holdfast	J043-045	3				2		1
	hooked rod	J052	1						1
	joiner's dog (staple clamp)	J046-049, 311-314	8				3	3	2
	large nail	J022-040	24			2	11	5	26
	loop-headed pin	J068, 441	2						2
	rivet	J453-454	5				4		1
	spiral	J457-458	2						2
	T-clamp	J041, 455	3				1	2	
	perforated bar	J442	1				1		
	ring-headed pin	J058, 067, 445-452	10			1	3	4	2
	ring-headed pin with ring attached (or bridle bit?)	J077-078	2		1		1		
	ring-headed bar	J069-071, 444	5				1	3	1
	undetermined	J456	1					1	
<b>unclassifiable</b>									
	tool or knife grip	C/D84	1					1	
	chain (element)	J001-020, J443	22		1	2	8	9	2
	link	J315-430	116		4	11	40	24	37
<b>undetermined</b>									
		K08-21	16		1		7	3	5
<b>TOTAL</b>			<b>812</b>	<b>4</b>	<b>17</b>	<b>72</b>	<b>292</b>	<b>216</b>	<b>211</b>

Table 76: Classification of the catalogued iron assemblage of the south-west corner site.

In the following section, no further comments will be given with regards to the large amount of fittings and links, together accounting for 477 items or 58.7% of the 812 catalogued items. This number should be added to the rest of the nails and clamps recovered from the site, resulting in a total number of 32,524 (fragments of) (structural) fittings. These fittings may have belonged to a multitude of domains (furnishing, immovable property, transport) and do not yield specific information on the functional implementation of the fort area and related activities.

It is important, though, to draw attention to several large nails recovered at the site, of which a selection has been catalogued (IR.J024-026, 030-031, 035-036, 039-040) (Plates CCCXIII-CCCXIV). According to Lyne such large nails which were also recovered at the Richborough fort (cf. Lyne 1996a, 148: Fig. 1, 9-10) belonged to boats of so-called Celtic construction. Such a 'Romano-Celtic' single masted sailing vessel has been recovered from the Harbour entrance in St Peter Port at Guernsey, Channel Islands in the 1980s (Rule 1990). Two vessels found in London, the New Guys House and Blackfriars ship I, are also of the Romano-Celtic type (Marsden 1990). The Guernsey wreck sank shortly after AD 285; the London ships date from the latter half of the 2nd century AD. These ships were constructed with large, J-shaped (clenched by turning through 180°) iron nails (cf. Rule 1990, 50: Fig. 5.2; 51: Fig. 5.3; cf. Marsden 1990, 70: Fig. 7.4). Also the Zwammerdam type barges were made with such large iron nails (cf. de Weerd 1990, with references). The Richborough 'ship nails' were found either unstratified or came from 4th-century contexts. Lyne suggests the possibility that warships and supply vessels constructed in Celtic manner may have been used by the garrison of the stone Shore fort during the 4th century as a replacement for the old shell-first built Mediterranean style galleys (Lyne 1996, 149). To the latter he attributes the bronze spikes (see before). The large iron nails occur at the Oudenburg site already from fort level 3 onwards and are well-represented at fort level 4. Although it cannot be excluded that some were indeed extracted from ship beams or were intended for such a construction – both used and unused nails can be discerned –, other applications cannot be excluded. Large beams through which such large nails were driven could be used in wells, large gates and other constructions of immovable property.

#### 4.2. Military life

Iron items referring to military life at the Oudenburg site consist either of armour or of weapons (Plates CCLXII-CCLXV). One military equipment accessory was recovered: an iron box-shaped scabbard chape (IR.A14) of the type '*Eiserne tauschierte Dosenortband*' (Oldenstein 1976; Miks 2009: Form-variante of type 1). Its find context at fort level 3 is in line with the mainly 3rd-century date of this type of scabbard chape.

Thirteen fragments of armour were recovered from the site. Two *lorica segmentata* elements (IR.A01-02) were found, one in the construction pit of fort level 5 basin OS 4923, most likely a dug-up item (A01), another in a fort level 4 or 5 layer (A02). In contrast to what has long been thought, *lorica segmentata* (laminated strip-armour) continued to be in use until the 3rd century (Bishop and Coulston 2006, 171-172), and its late 3rd-century use can probably be confirmed by item IR.A02. *Lorica squamata* or scale armour continued to be popular throughout the Roman period (Bishop and Coulston 2006, 64, 208). Only one fragment was found at the Oudenburg site, though, and this at fort level 4 (IR.A03). The preference for chain mail over scale armour may be related to the presumed mixed character of the units. Cavalry men required good mobility and will have preferred the more flexible *lorica hamata* or chain mail. It is the best represented at the site with ten fragments, all attributed to fort levels 4 or 5 (IR.A04-13). An interesting aspect is the insertion of copper alloy rivets in the mail iron rings of fragments IR.A09-11 and A13, while the other fragments only consist of iron rings. Apart from Oudenburg, the insertion of copper alloy rivets has also been attested by Wijnhoven at Thorsberg (G), Dura-Europos (S) and Maastricht (NL) and seems to be a relatively late decorative technique from the 3rd century onwards (Wijnhoven 2015, 27). Although the Oudenburg fragments in question all derive from the post-Roman level and as such cannot contribute chronologically, it can be supposed that they were dug up from the latest levels.

The recovered weapons at the Oudenburg site only consist of shafted weapons: *pila*, spears and/or javelins; these finds occur from fort level 2 onwards. Both *pilum* and spear were made up of a head, shaft (in wood) and butt-spike (such as the ferrules A15 and A16), the javelin of a head and shaft (Stephenson 1999, 52-54). *Pila*, spears (for infantry) and lances (for cavalry) were in use throughout the whole Roman period (Bishop and Coulston 2006, 76). The spear-/lance-/javelin heads recovered from the Oudenburg site display a range of dimensions and 'leaf-shaped' head-types: narrow- as well as broad-shouldered blades, with flat or triangular cross-section, but mostly socketed, less tanged. Bishop and Coulston (2006, 76 and 202), and in their footsteps Stephenson (1999, 52 (following Bishop and Coulston 1993)), point to the difficulty to classify the head-types and to the diversity of spear- and javelin-head forms in the later Roman period. Small heads can usually be attributed to javelins, large heads to thrusting spears, and medium-sized heads to shafted weapons for either purpose (Stephenson 1999, 52). The majority of depicted 3rd-century spears and lances show narrow-shouldered leaf-shaped heads, but broad-shouldered, triangular heads were also still used (Bishop and Coulston 2006, 151). Until the 5th century, the head forms of earlier periods continued to be in use with a range of broad- and narrow-shouldered blades (Bishop and Coulston 2006, 202).

#### 4.3. Transport

The iron transport-related items (IR.H01-21, possibly to supplement by H/C22-23 and J096-098, 100) (Plates CCCIV-CCCIX) complement well those in copper alloy. While the copper alloy transport-related elements consist mainly of decorative horse gear trappings and yoke rings, most of the iron items refer to the structure of the cart: five lynch pins (IR.H03-07), two axle caps (IR.H08-09), a cart bolt (IR.H10) and a wheel hub (IR.H11). Just like the copper alloy transport-related items, the iron elements of equipment related to vehicle and animal are clearly present from fort level 4 onwards. One has to take into account though that the repair function at the workshops can have influenced their presence.

The four iron harness bells should be considered together with the two in copper alloy. The bells IR.H17, 18 and 19 were probably also used as horse gear; the fact that both bells IR.H18 and 19 were originally covered by a copper alloy layer links them with their copper alloy counterparts. The iron core may have produced a more robust sound, while the copper alloy cover enhanced its appearance. The large bell IR.H16 may have been intended for draft cattle or beasts of burden such as oxen or mules (see Allison *et al.* 2005, Section 8.2.2); several such large iron bells were *e.g.* found at the site Steinacker in the hinterland of Cologne (Germany), dated to the first half of the 4th century and identified as cattle bells (cf. Pöfgen 2011, 218: Abb. 24.1).

The recovered hippo sandal IR.H01 is a late Roman item and may possibly be dated to the 4th century based on a similar find at Verulamium (Manning 1972a, 173: Fig. 63, 25). Recovered from a level containing material from the end of fort level 4 and from fort level 5, it may have been at the workshops for repair, but it can neither be excluded that this hippo sandal belonged to one of the horses on compound at fort period 5B. Hippo sandals were used on traction animals (Crummy 2011, 61) and cannot be taken as an indication of cavalry.

Two bridle bit fragments IR.H20 and 21 can be recognised as part of a curb-bit of type 1 by Manning (1985) and were recovered respectively from fort level 4 and the post-Roman level. The curb-bit was especially designed for the rapid reaction needed for cavalry mounts (Manning 1985, 67-68) and its presence is an extra argument for the identification of cavalry at the Oudenburg fort, at least at fort level 4.

The socketed double-pronged forks IR.H/C22 and 23 which were retrieved from fort levels 4 and 5 can be identified as boat stakes, with similar finds at Neupotz (Germany) (Künzl 1993, 45-48: Abb. 13-16) and Pommeroeul (Belgium) (De Boe and Hubert 1977, 37, 39-40: Fig. 48-49). Since the fort could be reached by ship through the nearby tidal channel, even close to the fort walls in the late Roman period, the presence of such boat stakes is certainly possible. However, an identification as fishing spears cannot be excluded.

#### 4.4. Personal life

Only a few iron items belong to the domain of personal life. The three simple buckles IR.B01-03 (Plate CCLXVI), two from fort level 4 and one recovered from the post-Roman level, complement the small assemblage of the copper alloy buckles but are ordinary items. Also belonging to this domain are the shoe soles preserved as corroded shoe spike clusters. In total 1358 shoe spike clusters were recovered from the site. The iron catalogue only lists the complete or large parts of shoe soles, preserved only as iron spike clusters. They form an important addition to the preserved leather shoes of which several still had their spike soles attached, not least since these leather shoes are only preserved from waterlogged contexts of fort level 4 and 5 (Appendix 27). The shoe soles only preserved as corroded shoe spike clusters do yield significant information, not only on size, but also on the decorative design formed by the spikes (see also Appendix 27)<sup>161</sup>.

#### 4.5. Trade and exchange

The iron steelyard components and weights (IR.G01-11) (Plate CCCIII) are to be considered together with the copper alloy steelyards (see above). The iron examples were probably used to weigh heavier goods. As mentioned above, their presence from fort level 4 onwards may suggest a function related to the cereal supplies – the division of rations for the soldiers?; several concentrations of charred cereal were found amongst the workshops of fort level 4 –, or related to the presumed market place the workshop area was.

#### 4.6. Domestic life

Some iron items belong to the culinary atmosphere and refer to the preparation of food. Seven cleavers found at the site (IR.D001-007) (Plate CCLXXXVI) can be attributed to fort level 4, except for one example from fort level 3 and one from fort level 5. Butchering of meat in the workshop area seems very unlikely, and the five cleavers may have been present here for repair or for recycling. However, the large waste-pit OS 4980 in the corner of the workshop area yielded several scapula of domestic cattle bearing a perforation as the result of mounting, drying and smoking of shoulder hams whereby a metal was driven through the bone (study by A. Eryvynck and A. Lentacker, both Flanders Heritage Agency). These bone finds suggest that a butchery was located in the vicinity of the workshop area and that not only waste from the workshop area was dumped in the waste-pit.

Whether the two grill bars (IR.D054-55) (Plate CCXCII), of which one certainly belonged to fort level 4, can be connected with the uncovered hearths is unclear. The use of cauldrons at the workshop area seems clear from the presence of several fragments at this level (Plates CCXCIII-CCXCIV), certainly by the cauldron chain IR.D056 found in the infill of the central well OS 22926.

The many iron handles recovered at the site belonged to vessels, such as buckets, or furnishing (Plate CCXC). At the north-east fort site (site Kapellestraat) an iron handle was still attached to a copper alloy sheet fragment, probably part of a large bronze vessel (see Vanhoutte *et al.* 2014, 223: Fig. 66, 2). The iron handles to which the split pens were still preserved certainly served trunks or larger chests. These were mostly not lockable and used for storing less valuable goods such as clothes, tools and, household utensils (cf. Riha 2001). Of the many recovered locks and lock elements (IR.D/I064-104) (Plate CCXCV-CCXCIX) the sliding locks probably belonged to doors or gates while the lock plates with key holes, and certainly the lock plate with cylinder for a rotary key (IR.D/C081), rather belonged to trunks or chests. Door and gate framing is furthermore represented by pivot linings (IR.I01-03), a door hinge (IR.I04) and a striker plate (IR.I05) (Plate CCCX). The variety in lock functions translates itself also in the diversity of keys (IR.D/I105-137) (Plates CCC-CCCI). Within this group of items related to furnishing again the predominant presence at fort level 4 is striking and may be partly/largely explained by the use of these, mainly large, iron

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<sup>161</sup> A full publication of the shoe finds is in preparation by C. van Driel-Murray in collaboration with the present author.



elements, as scrap metal. The box type padlocks, of which at least four examples were found (IR.D014-017) (Plate CCLXXXVIII), represent a wide-spread type with an ingenious lock mechanism. As with the modern cylindrical locks, their function may have been diverse.

#### 4.7. *Crafts and production*

An important find domain of the iron objects is that of crafts and production. The majority of these finds represent tools (Plates CCLXVII-CCLXXXV). Not all tools can be unambiguously related to a specific craft (see *e.g.* chisel IR.C14, adzes/hoes IR.C24-26, saw file? IR.C39, scraping-knives? IR.C48-49, spades/shovels IR.C59-67). Nevertheless, it is clear that these tools mainly refer to metalworking, woodworking/carpentry, textile working, leather working and agriculture/agropastoral life.

At least thirteen tools (an anvil, hammers, chisels) can be related to metalworking (IR.C01-C13). The anvil (IR.C01) is exceptional as it is one of the largest known examples when compared to similar finds in literature. This anvil of the block type (Manning (1985) type 2, Duvauchelle (2005) type 1b)) had a round hole at the corner of the face running down to emerge in the sloping. Manning (1985) interprets it as a hardy-hole, to attach supplementary anvil tools; Crummy however sees it as a punching-hole, allowing the smith to drive a punch through the metal being worked without damaging the punch itself or the face of the anvil (Crummy 2011, 72). Except for one hammer (IR.C07) all metalworking tools were recovered from fort level 4 or later levels. Most of them most probably served in the metalworking activities at the workshops of fort level 4.

Interestingly, also the tools referring to other crafts prevail from fort level 4 onwards and their majority can equally be related to the fort level 4 workshops. An exception is formed by the two cobbler's lasts IR.C68-69 which were recovered from a pit near the back of the military hospital of fort level 2. They are an indication for a nearby shoemaker's workshop. The presence of most of the tools from fort level 4 onwards does not necessarily imply that all these crafts were performed in this workshop area. These tools could have been manufactured at the workshops, repaired here and/or served as scrap metal to recycle them into new objects. All three options are possible. Nevertheless their presence implies their use at the fort precinct and by the military and points to the self-sustainability of the army.

An important portion of tools refers to woodworking and/or carpentry (IR.C15-38, C40-47); possibly tools IR.C39, C48-49 can be added here. The ten wool combs IR.C73-82 form an exceptionally large assemblage. They all represent the continental double-sided type. This comb was used in the textile process to comb or card the wool before it could be spun, by removing short wool, entangling the fibres and aligning the strands in order to make spinning easier (White 1970, 25; Crummy 2011, 85). The find of wool combs, and moreover so many, suggests that carding was done on a large scale.

A hoe (IR.C50), a pickaxe (IR.C52) and three ploughshares (IR.C53-55) refer to agriculture. The pick or pickaxe IR.C51 and the nine spades or shovels IR.C59-67 may also have served this purpose, although it cannot be excluded that they were used respectively in stone working and construction. The three pitchforks IR.C56-58 recovered from the Oudenburg site belong to fort level 5. Pitchforks can be related to harvesting and were used to spread, stack and lift the cut hay or corn. However, certainly two of the recovered pitchforks (IR.C56-57) can be attributed to fort level 5B and can be functionally related to the compounds of which can be presumed that they held horses. As such they may have been used for collecting and lifting hay. The presence of a dosing cone (IR.C83) at fort level 4 confirms the use of quern installations at this level. Especially some large quern fragments are evidence of this.

#### 4.8. Ironworking remains

The many iron slags are indicative of ironworking at the fort precinct. A selection of iron slag lumps has been archaeometrically analysed (Plas 2016)<sup>162</sup>. All iron slags can be identified as forge slags, most of them being plano-convex bottom slags or 'smithing hearth bottoms' (PCB's)<sup>163</sup>, the most common type of waste material resulting from forging activities. Further analysis of their geochemical composition and morphology revealed that several slags are so-called SGD's (*Scorie Grise Dense*); they result from a forging activity in which an iron object was produced out of cast iron or in which an iron object was forged into another. Other slags are so-called SAS's (*Scorie Argilo-Sableuse*), a type of slag formed during welding or while shaping steel, a high-quality iron alloy composed of iron and carbon; probably here it concerns the first process. Most of the slags are the iron-rich so-called SFR's (*Scories Ferreuse Rouillés*), slags typically formed while welding together iron items or whilst repairing iron objects.

The analysed slags of level 1 to 3 are too limited to draw general conclusions but they bear witness of (nearby?) welding and forging activities at the fort precinct. Our focus is on the large number of slag material at fort level 4 and the way in which they can be related to the workshop activities. The three types of forge slags are represented at this level. They point to the varied metallurgical activities at the workshops. The analysed slags recovered from fort level 5 all represent SFR's. They indicate that, although many slags were probably dug-up items from the fort level 4 workshops, the metallurgical activities at fort level 5 focused apparently only on the repair and welding of iron objects; no new products seem to be produced, at least not in this part of the fort.

Many iron items found at fort level 4 were probably scrap metal intended for recycling, other objects were probably repaired at the workshops. To what extent new iron items from cast iron were made is so far unclear. Only the production of nails seems evident. Already at fort level 3 such production took place in the south-west corner area. To the west of Unit IVb two of the hearth pits (see Addendum 3, 21: sections 8/310 and 8/312 (earliest feature)) and the hearth succeeding one of these pits (section 8/312 (later feature)) yielded clusters of unused, identical nails in the bottom charcoal layers (IR.C/D85-87). Nail production can also be assumed to have taken place at workshop Unit IV of fort level 4. The fire layer covering this workshop contained many clusters of complete, unused, equal-sized (all c. 5.0 cm) nails (IR.C/D88-89).

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<sup>162</sup> I would like to thank P. Degryse (KULeuven) for the opportunity to analyse a small selection of slag material from the Oudenburg site as subject of a bachelor thesis. As such, I could obtain a general idea of the metallurgical activities at the site. Obviously, an in-depth study of a much larger sample of slags is needed to be able to draw conclusions according to the chronological distribution of the slag material and to obtain a full picture on the metallurgical activities. Furthermore, this study should be combined with the analysis of other hearth- or furnace-related finds such as the many vitrified hearth/furnace linings found on the site, mainly at fort level 4, obviously originating from the hearths and ovens uncovered at this level.

<sup>163</sup> The terminology of the forge slags is based on Serneels and Perret (2003).

## 5. The metal assemblages reconsidered

Residuality, as shown to be an important aspect in the ceramic assemblage, evidently also colours the metal assemblage of the south-west corner site. This is most obvious from the significant dug-up portion into the post-Roman level.

A very similar 3rd-century copper alloy assemblage was recovered at the Aardenburg fort (cf. Besuijen 2008). For several items, such as yoke rings, horse gear fittings, simple one-piece sprung brooches with flat wire bow, netting needles, keys, furniture elements, identical parallels are known. Although this is not an exclusive argument, it strengthens the idea of a parallel development at both forts in the 3rd century. Typically 4th-century items are clearly absent in the Aardenburg assemblage (see Besuijen 2008).

The Oudenburg metal assemblage contains a rather low quantity of copper alloy militaria. The same can be seen at the Aardenburg fort. Based on this low quantity, Besuijen (2008, 77-78) concluded, in combination with the large amount of furniture items at the Aardenburg fort, that it rather had a civil character. However, the everyday life of a soldier, his household utensils, his furniture will not have differed much from that of a 'civil' household. The military character of a site is visible in the military items, but it is important to keep in mind that they only represent waste, lost items and, within the context of the workshops of fort level 4, items for repair or recycling. Other items of everyday life or utilitarian objects should not be looked at as having a 'military component'.

The overview of the Oudenburg metal assemblages reveals the determining factor for the workshop function of fort level 4 due to the composition of the assemblage, not only through the products made and repaired there, but also through the use of scrap metal for the metalworking activities. Nonetheless, the many functions and crafts the products for repair or recycling refer to, show the variety of crafts present on the fort precinct. They bear witness of the high degree of self-sustainability of the army unit. This becomes clear at fort level 4, due to the metalworking workshops where these items came together. Whether the self-sustainability of the fort characterises the fort occupation only at fort level 4 (or from fort level 4 onwards) or whether this is characteristic for the fort in general, which only becomes visible at fort level 4 because of the functional implementation of the area, cannot be concluded from the metal study.

## APPENDIX 23 - Items in worked animal products (antler, horn, bone and ivory) at the south-west corner site

### 1. Introduction to the assemblage

Items in worked bone, antler, horn and ivory deserve close attention, mainly because this category largely consists of personal items that offer an important contribution to the gender research of the fort site. The assemblage is also significant in light of the presence of military items as in the 3rd century AD many sword and baldric accessories were made of bone or similar materials (Bishop and Coulston 1993, 161).

At the south-west corner site of the Oudenburg fort 327 items in worked bone, antler, horn or ivory were recovered. Apart from finished artefacts, this number also includes bone, antler and horn fragments with clear traces of processing, representing half-finished or waste products. This collection was brought together during the fieldwork and initial cleaning of the finds but detailed archaeozoological studies of selected contexts have demonstrated that much more of such half-finished or waste material can be found within the collection of (presumed unworked) animal bones (see e.g. the study by A. Eryvncck and A. Lentacker in Vanhoutte *et al.* 2009b; Fret 2005 and 2006; Massagé 2015). In the catalogue presented here 190 items in worked bone, antler, horn and ivory are subject to analysis as they can be identified to specific Roman artefact types, coming from the Roman, post-Roman or mixed levels. Not included are the animal remains that cannot be identified as (fragments of) specific objects but that are waste products of the production process (merely horn, bone and antler fragments). Neither are included the clear and probable medieval finds, all of course recovered from the post-Roman or mixed levels. For each item in the catalogue comparable finds are listed where possible and to the extent necessary to understand the chronological significance and the area of distribution of the considered find type. In this respect the literature study in the catalogue has not the intention to be exhaustive. The following text aims at highlighting broad conclusions and wants to offer the basis for further analysis of gender, social and cultural aspects of the fort inhabitants. For the find comparisons the author refers to the catalogue in order not to repeat all data listed there.

The catalogue of the Roman finds made of animal products (antler, horn, bone and ivory) (AHBI) is inserted as Addendum 8. The finds are recorded and illustrated (Plates CCCXXV-CCCXXXVIII) according to the functional classification also applied to the metal finds. For the catalogue the raw materials were identified by A. Lentacker and A. Eryvncck, both of the Flanders Heritage Agency. A full publication of all the finds made of animal products is envisaged in close collaboration with these colleagues.

### 2. Items related to military life

Ten items of the worked bone/antler/horn/ivory assemblage can be classified as military accessories (Plate CCCXXV). Five of them are (fragments of) scabbard chapes. The two-piece box chape type represented by A03, A04 and A05 can be dated in the late 2nd-3rd centuries (Oldenstein 1976, 244-245; Miks 2007, 363-364) which is in line with the find contexts at the Oudenburg site, respectively from level 3, 4 and 1>4. This type has a wide distribution in *Britannia*, *Gallia* and *Germania Inferior* and *Superior*. The box chape A01 with pelta-shaped piercings, a popular type with a Europe-wide distribution as well (Bishop and Coulston 2006, 161), is dated late 2nd/early 3rd century until at least the end of the 3rd century, possibly into the second half of the 4th century (Miks 2007, 373: '*Kastenortband*' variant A1). If the Oudenburg fragment, which is burnt, is not a residual find at fort level 5, its find context may confirm this later end date. The rounded scabbard chape A02, most likely the lower fragment of a chape with peltate piercings but broken off at their bases, is obviously a residual find in level 5+post.

This assemblage also contains a bone scabbard runner (A06) of the type which can be dated in the first half of the 3rd to the second half of the 4th century (Miks 2007, 315-316). Recovered from the level 5+post, it may have been an item from fort level 5 or a dug-up item from fort levels 2, 3 or 4. The ivory baldric fitting A07, a fungiform stud, was a common belt fitting type in the 3rd century (see Bishop and Coulston 2006, 182-183: Fig. 118, 9-12). Oldenstein (1976, 169) dates this type in the second half of the 2nd – first half of the 3rd century indicating that, although recovered from the post-Roman level, this item must have belonged to one of the first three fort levels. The 'military' assemblage is completed by three fragments of ribbed sword hilt grips, two made in antler (A08 and A10) and one in bone (A09). They represent the general type of grip of 3rd-century long swords or *spathae* (see Bishop and Coulston 2006, 157: Fig. 98). The A10 sword hilt grip can be identified as the Nydam type (Miks 2007, 200-202). Example A08, recovered from the infill of well OS 22926 of fort level 4, confirms the use of such grip in the late 3rd century.

These military items can only be generally dated, mainly to the 3rd and/or 4th centuries, and can therefore contribute only very little to the chronological discussion of the successive occupations of the Oudenburg fort. Nevertheless, they are in line with what can be expected at a military site and they represent standardised Roman military accessories.

### 3. Items related to personal life

#### 3.1. Combs

In total 40 combs or comb fragments were recovered from the Roman and post-Roman levels at the south-west corner site. At least eight of them can be identified with certainty as Roman, through their type and/or based on the stratified evidence (Plate CCCXXVI). Four of them are triangular-backed single-sided combs made in antler, a typical late Roman comb type. Only comb B003 was found in context at fort level 5, namely in the primary infill of the large basin OS 4923 of fort level 5B. This decorated type can be generally dated in the 4th to first half of the 5th century (Thomas 1960; Riha 1986, 1). The same dating can be assumed for the decorated comb B002, recovered from the dark earth level. A similar comb was found in grave 14 of the Oudenburg graveyard A (Mertens and Van Impe 1971, Pl. V, 2) and dated after AD 350 based on the accompanying grave goods. Comb B001 and comb fragment B004 – in its complete form the latter comb was probably not much smaller than B001 – represent the undecorated triangular-backed single-sided comb type which seems to be of a later date, according to Böhme date to the 5th century (1972, 123). Both finds are recovered from the dark earth level.

Four comb fragments, produced in antler or bone, represent the double-sided type, a type that started in the 4th century but continued to be used in exactly the same form at least well into the early medieval period (see *e.g.* Dijkman and Eryncck 1998). For that reason the double-sided combs of the post-Roman level are not integrated in the presented catalogue, although at least some/many of these combs (or comb fragments) were probably residual items from the Roman level. That the double-sided comb did occur at the late Roman fort, is demonstrated by the find of four different double-sided comb fragments, all found within the context of the double well OS 2562. While B007, B005a, B008 and B006 belong to the filling-in of the inner well after abandonment and represent therefore the very end of the last fort occupation at Oudenburg, the location of the cross joining B005b at the bottom of the shaft in between both frameworks, testifies to the certain occurrence of this comb type during fort period 5B. The context here dates this comb with a *terminus ante quem* of *c.* AD 379/380 which is the felling date provided by dendrochronological analysis for the inner well. The deposition of the double-sided comb as a grave good in a few graves of graveyard A (graves 58, 71, 84 and 88<sup>164</sup>) is obviously another piece of

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<sup>164</sup> While graves 71 and 84 can only be generally dated to the second quarter of the 4th century – early 5th century since they did not yield any datable grave goods, grave 58 is dated by a roller-stamped Chenet 320 bowl in the period AD 375-425 and grave 88 likely dates *c.* AD 430 based on the accompanying brooches.

evidence from Oudenburg that confirms the late Roman date of at least several of the double-sided combs at the fort site<sup>165</sup>.

The find of a semi-manufactured double-sided comb fragment (Fig. 114) at the transition of the top of the Roman level with the post-Roman level (however without clear context) most likely indicates that double-sided combs were made at the fort site during the last fort occupation.



Fig 114: Semi-manufactured fragment of a double-sided comb recovered from the transition level between the Roman and the post-Roman level.

### 3.2. Hair pins

In total 135 pins identifiable as (most likely) hair pins were recovered at the south-west corner site, both from the Roman and post-Roman levels<sup>166</sup> (Plates CCCXXVII-CCCXXX). Two of them (B009 and B010, attributed to respectively fort level 3 and 4) are of the type with plain conical head Crummy 1979/1983 Type 1, for which another function as writing tool or cosmetic instrument can also be suggested (cf. Schenk 2008, 26; Riha 1990, 112). The same interpretation is valid for pin B147 recovered from the post-Roman level<sup>167</sup>. Three other hair pins, B101, B045 and B078, were re-worked into shorter pins, possibly after the original point was broken off.

The hair pins recovered from the post-Roman level all belong to the Roman type repertoire and are most likely all (or mostly<sup>168</sup>) residual Roman finds (Table 77). Of these 46 hair pins from the post-Roman level (and from levels 5+post and mixed: sixteen hair pins were collected at the transition Roman – post-Roman level), one can assume that the largest share was dug up from contexts that originally belonged to the last fort level (fort level 5B).

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<sup>165</sup> To name a parallel from a closed context of another late Roman site: see Nempont-Saint-Firmin (France) where double-sided combs occur next to triangular combs at the graveyard dating from c. AD 330 until c. AD 410/420 (Pouriel 2015).

<sup>166</sup> A first overview of the hair pins found at the south-west corner site was made by T. De Ridder (2009) within the context of his Master thesis.

<sup>167</sup> These pins are included in the hair pin overview table as pins of Crummy Type 1 (although pin B147 has grooves on the head).

<sup>168</sup> However, it cannot be totally excluded that there are some early medieval hair pins involved. The early medieval site of Domburg (NL) for example yielded a vast amount of bronze hair pins of which several types are related to the Roman hair pin typology (cf. Capelle 1976, Taf. 12-14).



When the hair pins are classified according to the (general) level to which their find context belongs, an increasing presence of hair pins becomes visible (Table 77). While level 1 did not yield any and fort level 2 only yielded six hair pins or fragments, their presence is significant from fort level 3 onwards with a clear increase at fort level 4. Fort level 5 shows a status quo with fort level 4 but with most likely a lot of hair pins from the latest level having been dug up into the transition with and into the post-Roman level, this number was probably a lot higher.

HAIR PIN TYPE	L1	FL2	FL3	FL4	FL5	5+POST/ POST	TOTAL	DATING RANGE OF TYPE
pins with a plain conical head (Crummy Type 1)			1	1			2	c. AD 70-250
pins with 1-3 transverse grooves beneath a conical head (Crummy Type 2)			1			1	2	c. AD 50-250
pins with a spherical or ovoid head (Crummy Type 3)		4	9	16	15	8	52	c. AD 100/200-400 (depending on sub type)
-onion- or pine cone-shaped			1	2	1	10	14	
-stamp-shaped		1		3	1	2	7	
pins with a cuboid, faceted head (polyhedron-shaped) (Crummy Type 4)		1		3	1	1	6	c. AD 250-400
pins with 1-5 reels beneath a conical or ovoid head (Crummy Type 5)						4	4	c. AD 250-400
pins with a reel- or bead-and-reel-shaped head (baluster-shaped) (Crummy Type 6)					1	3	4	c. AD 200-400
pins with a stylised anthropomorphic head						4	4	c. AD 250-450
undetermined (only partially/no head preserved)			6	8	13	13	40	
<b>TOTAL</b>	<b>0</b>	<b>6</b>	<b>18</b>	<b>33</b>	<b>32</b>	<b>46</b>	<b>135</b>	

Table 77: Distribution of the hair pin types according to the stratified evidence.

Besides these 'finished' hair pins, two pins represent semi-finished items of hair pin production (B144 and B145). Although they were found respectively at the transition Roman-post-Roman level (without clear context) and in the dark earth, a hair pin production activity may be assumed at the fort site<sup>169</sup>, likely in the last fort level; however fort level 4 should not be excluded as a possibility. An unfinished roughly-shaped long pin (B146) recovered at fort level 4 but of which cannot be concluded with certainty whether the intended end product was a hair pin, may be an indication for that (Fig. 115). In any case this find confirms that there was working of bone and/or antler during fort period 4.

<sup>169</sup> It is of course difficult to evaluate the degree and extent of the production of bone and other animal products at the site without taking into account the waste products. One can assume that at every larger Roman site there must have been such production (pers. comm. A. Ervynck).



Fig 115: Unfinished roughly-shaped long pin (B146) recovered at fort level 4, possibly a semi-manufactured hair pin.

### 3.3. Armlet

Another piece of personal ornament is the armlet fragment B150 found in the post-Roman level (Plate CCCXXX). With a diameter of 4.5 cm, this armlet was clearly intended for a girl (or a young boy?) (see for the discussion of the diameters: Appendix 24). It can however not be excluded that this find was brought in from outside the fort.

### 3.4. Toilet instruments, writing tools and/or toothpicks?

Attention was already drawn to a few items in the (hair) pin assemblage which might have had another function. The pins B009 (level 3) and B010 (level 4), both of Crummy 1979/1983 Type 2 without a separately developed head, might have had a function as writing tool or cosmetic instrument according to Schenk (2008, 26) and Riha (1990, 112). The pins B045 (level 5), B103 and B078 (both of the post-Roman level) were originally made to serve as hair pins but were later reworked into a shorter pin (probably after the point was broken off); in their second life they could well have been a toothpick, a writing tool or a cosmetic implement. Another short pin, item B147 (post-Roman level) that cannot be identified as a hair pin type, also may have been used for one of these functions.

Undoubtedly used as an instrument for body care or medicine is the bone *ligula* from fort level 2 (B148) (Plate CCCXXX). It was found in a waste-pit just outside the southern wall of the hospital building which was covered by the fallen down plaster wall of the southern corridor. Its relation to body care may assign the use of this *ligula* to the hospital. Related to body care is also the fan handle found at fort level 4 (B149). As with the hair pins, this item may point to a female presence at the fort site.

## 4. Items related to social life

Seven counters can be classified in this assemblage, presumably all made of bone (Plate CCCXXXV). They represent the circular type with planoconvex section Crummy 1983 Type 3, either plain (E01, E02, E03, E05, E07) or with central dot (E04, E06). Three of them can be attributed to fort level 3, two to fort level 4, one to fort level 5 and one counter was found unstratified. These counters are to be considered together with the glass counters and the gaming pieces made of pottery sherds and ceramic building material (see the general discussion of the counters found at the south-west corner site: Appendix 25). A hollowed, sculpted object with incised decoration of a bird's head, possibly an eagle's head (E08) (the latter identification would fit in well in the military context) and for which no parallels could yet be found in literature, is thought to possibly have been a chess-piece. It originates from a mixed level 4+5. Gaming clearly occurred inside the fort walls and formed part of the fort life. For a long time it has been believed that soldiers went outside the fort to the civil settlement for leisure; this all fitted in the conception of the military base as a strictly military world. The contrary has already been demonstrated by the material evidence at German forts studied by Allison (2013, 350).

## 5. Items related to domestic life

Two fragments of decorative veneer (bone) (D01 and D02) and possibly also a decorative plate made of antler (D03) point to the presence of decorated boxes or other pieces of furniture (Plate CCCXXXIV). With one item from fort level 3, one from fort level 5 and a third unstratified find, no further conclusions can be drawn based on their find context. The handle of a clasp-knife can be attributed to fort level 4.

## 6. Items related to production

Two polished double-pointed pins C01 and C02, both recovered at fort level 5, can be identified as weaving pins or pin-beaters (Plate CCCXXXI). Wild (1970, 66) recognises them as implements for beating up the loose weft or to order the warp and weft, an identification also accepted by Deschler-Erb (1998, 140) for the items found at Augst. The Augst finds verify a time-span for this type of tool from the 2nd to the 4th century AD.

Another indication for textile working at the fort site may be the four hollowed bones (Plate CCCXXXII). Three of them are decorated with dot-and-ring decoration, on item C05 applied rather careless. The bone C04 has no decoration but its modifications put this item in the same category. While C04, C05 and C06 were found in the post-Roman level, the item C03, found at level 5(+4), indicates that the three items from the post-Roman level are most likely residual Roman finds, possibly from the latest level. This type of object was recognised by Wild (1970, 34) as a bobbin, used to carry thread between spinning and warping. The identification as bobbin has also been put forward for similar finds at Richborough and Portchester, respectively by Bushe-Fox (1928, 46) and Cunliffe (1975, 222). However, the X-radiation of such an object found in the North of France at the site of Moyencourt has revealed sewing needles in its interior and evidences a function as needle case (Thuet and Morel 2013). Greep, who is currently making a paper on Moyencourt type decorated needle cases from Britain, defines this type of object as *'sharing a common feature of utilising sheep metapodia, having their proximal ends removed, and the distal remaining intact, but with sometimes two drilled holes, probably for suspension; the central cavity often appears to have been hollowed smooth and sometimes the outer surface is worked and 'squared', probably to make it easier for the surface to be decorated'* (pers. comm. S. Greep, with permission). While most examples are partly or largely covered by a ring-and-dot decoration, some were undecorated, like e.g. the example of Lankhills of a burial dated to c. AD 390-410 based on coin evidence (Clarke 1979) and which has evidenced by X-radiation also to contain the remains of copper alloy needles (pers. comm. S. Greep). Also the Oudenburg example C04 is undecorated. Examples from Roman Britain are known by Greep from Chignal (c. AD 285-370+), Nettleton (4th century), Piddington (associated coins of AD 350-353), London (c. AD 350-400), Winchester (mid to late 4th century or later), Bourton-on the Water (c. AD 370), Frocester Court (late 4th century), Winchester, Lankhills

(c. AD 390-410), Dorchester (early 5th century), Canterbury (post-Roman 'dark earth') (pers. comm. S. Greep, taken over with permission). The find contexts of the presumed pin-beaters and these needle cases complement each other well. Both the pin-beaters and the hollowed bone from fort level 5 point to textile working at the fort site during the last fort occupation.

The large, polished handle C07 made of a fragment of the antler of a red deer and with remains of iron nails to secure the iron blade (of which remains of the fixation part are still preserved), most likely represents a saw (Plate CCCXXXIII). Found at Unit I of fort level 4, the saw fits in well in the toolbox of the workshop where, based on the metal finds recovered at the spot, more activities took place than just metalworking.

## 7. Items related to spiritual life?

Five antler spikes with perforation at the base, F01-F05, are most likely to be considered as a kind of talisman (Plates CCCXXXVI-CCCXXXVII). Although no common find, this type of object is well-spread over Europe according to the distribution research by Anderes (2015, 44-45). Most of the scholars attribute an apotropaic function to these spikes of which the smaller ones could be worn by individuals and the larger ones hung in the quarters or workshops to protect against evil (Czys 2003; Obmann 1997; Deschler-Erb 1998). They might recall the bronze mounted boars' tusks which were for example found at Richborough (Bushe-Fox 1949, Pl. XLVI, 173-174). Three of the Oudenburg spikes were found at fort level 4 (F01-F03) and two at fort level 5 (F04-F05).

## 8. Undetermined finds

Three finds from the Roman level remain undetermined (Plate CCCXXXVIII). An antler of a young deer (K01), polished at the point and with the pedicle surrounded by a ring of copper alloy, must have functioned as a grip but it is unclear for what instrument, maybe a writing tool? This item was found at fort level 3. Two polished rings, one made of a hollowed long bone (K02) and one in ivory (K03), both from fort level 4, remain unidentified.

## 9. Conclusion

The assemblage of items made of worked bone/antler/horn/ivory contains a set of military items mainly typical for the 3rd century. It needs to be considered as complementary to the military equipment made of copper alloy and iron.

Most important is the large quantity of hair pins recovered at the site and shedding light on the female presence and its evolution at the fort. Evidence is given for hair pin production at the fort site, certainly at fort level 5 but possibly already at fort level 4. The fact that hair pins were manufactured at the fort site implies that women were part of the fort community and not simply visitors or 'passers-by'. More production is implied by the finds pointing to textile working. The pin-beaters and needle cases indicate that textile working took place at fort level 5.

Very significant are the antler spikes to which an apotropaic function as talisman is attributed: they are some of the few finds offering a window to the spiritual life of the fort inhabitants.

## APPENDIX 24 - Jet and jet-like finds at the Oudenburg fort

### 1. Introduction to the assemblage

The south-west corner site of the Oudenburg fort yielded 25 finds made of jet or a jet-like black material: three hair pins, one hair pin head, one necklace bead, fifteen armlets, three gaming discs, one spindle whorl and one die<sup>170</sup> (Plate CCCXXXIX). This small but unusual amount of jet or jet-like objects at the Oudenburg fort site is striking, in particular since these materials are rather rare on continental sites in the northwestern provinces except at some rich burials. On the Continent these materials seem to have been usually replaced by black glass (Cosyns and Ceglia 2016, 4).

The jet and jet-like assemblage of the Oudenburg site consists essentially of jewellery, but also some gaming pieces and one utensil can be counted (see catalogue under Section 8). Remarkable is the total absence of finger rings, pendants, the very characteristic double perforated 'Trilobitenperlen' and the semi-circular pieces forming part of a segmented flexible bracelet with both latter types dating to the 3rd to mid-4th century (Cosyns and Ceglia 2016, 5).

### 2. The materials and their chronology

The differences in appearance, texture and radiance of the Oudenburg artefacts make already clear at first sight that different kinds of 'black' material are in play. Their differentiation can only be made through scientific analysis (Eckardt 2014, 120). Analysis by L. Allason-Jones of 'jet' artefacts from the Yorkshire Museum by reflected light microscopy has revealed that apart from jet, also shale, cannel coal, durain and household coal were used to carve objects from as they all could be polished into black and shiny material (Allason-Jones 1996, 54). Of these materials, shale was probably the most used alternative to jet (Allason-Jones 1996, 6). Nine<sup>171</sup> objects of the Oudenburg 'jet' assemblage were examined by means of a micro-XRF to discover the chemical composition of the piece<sup>172</sup>. Based on this chemical composition one can differentiate between the various organic and geological material that has been used (Cosyns and Ceglia 2016, 9 with references). Hair pin GIT020 appeared to be of 'real' jet, bracelets GIT009 and 013 were made of shale. For the necklace bead GIT006 and for the bracelets GIT007, 008, 011, 014 and 016 the analysis was not conclusive; their material is jet or shale (see Cosyns and Ceglia 2016, 9-12).

It can be expected that the 'real' jet items were imported from the north of England or from Württemberg (G) within the *Agri Decumates*, a region between the Rhine and the Danube beyond the formal Limes<sup>173</sup> (see Moser 1843, 195; Bauer 1909, 685). However, sources at Dorset (UK), Hungary, France and Spain were also being used in Roman times (Allason-Jones and Jones 2001). As the jet finds appear from fort level 4 onwards, the period in which cross-channel connections were intensified, the Yorkshire coast near Whitby seems to be the most plausible source. The most frequently worked shale in Britain was the 'Kimmeridge clay', with its most famous source in Dorset but with outcrops all over the country. Most of the cannel coals and durains used for jewellery production in York appear to have come from the Yorkshire Coal Measures (Allason-Jones 1996, 6-7).

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<sup>170</sup> With thanks to P. Cosyns for feedback.

<sup>171</sup> The analysis was performed on ten items. One item appeared to be made of bone which was secondary burnt, and was therefore added to the assemblage of the worked bone finds.

<sup>172</sup> The results only concern superficial measurements without destructive handling of the objects, yielding only relative plots. Therefore the results should be considered as preliminary. More intensive analyses with more appropriate techniques would define more accurately the material applied to produce these items.

<sup>173</sup> A scientific analysis to obtain information on the specific origin of the jet and jet-like materials attested at Oudenburg is planned for the near future.

Research revealed that jet was the preferred material for the production of hair pins; shale was mainly used for armlets and tablets, and coals were preferred for the production of finger rings and beads (Allason-Jones 2002, 40). The analysis results for the items from Oudenburg, although very limited, seem to confirm this general division.

The jet industry in York probably already started in the (late) 2nd century AD, but it is only in the 3rd century that this material rapidly became very popular and stayed that way throughout the 4th century (Allason-Jones 1996, 8-9, 15). At Oudenburg, the material only appears from fort level 4, the later 3rd century, onwards. All three hair pins originate from this level, as is the case for the gaming pieces and the die. Except for one armlet belonging to fort level 4, all armlets were collected from fort level 5 of the 4th century-early 5th century or from a later level.

### 3. Female connection

Necklaces, hair pins and spindle whorls are traditionally associated with women (Allason-Jones 1996, 17). Apart from this functional attribution, jet finds seem to have been especially attributed to women. Their presence in female graves seem to indicate that they were intended solely for female use (Allason-Jones 1996, 26; 2002). Allason-Jones believes this is related to the religious or magical significance of this material for women. Pliny the Elder mentions in his *Historia Naturalis* (Book XXXVI, Chapter 34, 141 (Eicholz 1962)) that '*the kindling of jet drives off snakes and relieves suffocation of the uterus. Its fumes detect attempts to simulate a disabling illness or a state of virginity*', a clear indication for the connection of this material with fertility (Allason-Jones 2005, 123-124). For shale there is less direct evidence for an attribution to women (and children) but this connection seems to be likely (cf. Eckardt 2014, 118-119).

Closed contexts from excavations in Belgium and abroad have demonstrated that jet and jet-like jewellery occurs in very specific contexts: in burial contexts and in (ritual) depots, including hoards (Cosyns and Ceglia 2016). The fragmentation and the chronological and spatial distribution of the jet or jet-like jewellery finds from the Oudenburg site indicate that they have to be considered as discarded material which had been worn by fort inhabitants, *in casu* women and girls.

### 4. Jewellery

#### 4.1. Hair pins

The 'jet' assemblage of the Oudenburg south-west corner site contains three hair pins and one plain, semi-rounded hair pin head which could be attached onto a bone pin (Plate CCCXXXIX). The three hair pins can be divided into two types. The two pins with faceted cube head no. 1 and no. 2, both most likely of 'real' jet<sup>174</sup>, represent the most popular type of hair pin, introduced from the late 2nd-early 3rd century onwards, and a common type until the 4th century, not only in *Britannia* but also on the Continent (Allason-Jones 1996, 40). Hair pin no. 1 shows a cubic pinhead, while the other faceted pinhead no. 2 is more elongated, a subtype also known in other materials. These are short hair pins (length: c. 60 to 65 mm) with a thickening of the shaft (diam.: c. 6.5 to 7.5 mm). This type of hair pin is also known in bone (Crummy (1983) bone Type 4) and in metal (Crummy (1983) metal Type 4). Based on burial contexts in *Britannia* these hair pins are mainly dated to the second half of the 3rd and the 4th centuries (Crummy 1983, 29; Barber and Bowsher 2000). The short jet hair pins fit in with the hair fashion popular in the 3rd and 4th centuries. The fashion was to wear the hair close to the back of the head rather than piled on top of the crown as before, so longer pins were no longer required (Allason-Jones 1996, 38). Both of the Oudenburg

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<sup>174</sup> The very shiny appearance and high quality of GIT001 indicates that it concerns most likely jet; the hair pin is exhibited in the Oudenburg museum RAM and could not be examined. The chemical analysis of hair pin GIT020 pointed to jet.



hair pins originate from fort level 4, dated to the later 3rd century, and are in accordance to the dating of the type.

The third hair pin (no. 3) has a narrow cylindrical shaft without thickening and a cylindrical pinhead decorated with two parallel horizontal grooves. This form is unknown in jet in *Britannia*, but well-known in bone (Crummy (1983) bone Type 5). This type of hair pin in bone and metal has a pinhead with one or four grooves (to represent one or more rings) and is always finished with a conical head. The finishing of the head of the Oudenburg pin has a rosette-shaped top and seems to be finished; it cannot be ruled out that it concerns a secondary processing of the pin. This type of hair pin in metal and bone is dated to the (second half of the) 4th century (Crummy 1983, 24). The Oudenburg hair pin was found in a level belonging to fort level 4, dated to the later 3rd century. If this is not an intrusive find, the Oudenburg find is possibly indicative for an earlier start date of this type in jet.

The semi-rounded piece with perforation on one side (no. 4) was the head of a hair pin in bone, as comparable finds still attached onto the bone pin from South Shields demonstrate (cf. Allason-Jones and Miket 1984, 79: nos. 2.443-446). It was found in a pit at fort level 3, mid-3rd century.

#### 4.2. Armlets

The fifteen armlets consist of two cabled armlets, three dot-and-ring decorated armlets, one armlet with ridge and notches and ten undecorated and plain armlets. A study on the contemporaneous black glass bangles by Cosyns has demonstrated that a basic subdivision into a group of undecorated/plain armlets and a group of decorated ones is barely useful when it comes to chronology (Cosyns 2011). The distinction based on technology between the larger/wider rod-formed bangles versus the narrower/lighter swirled and cone-rolled armlets appears to be much more important in light of chronology. According to the study of over 1200 black glass bangles (Cosyns 2011) the larger/wider, almost massive bangles were characteristic for the period from the beginning of the 3rd to mid-4th century AD. This dating is in accordance with the context of bangles nos. 12, 13 and 14 which all originate from fort level 5 or from the post-Roman level. The narrower armlets were typical for the second half of the 4th century and beginning of the 5th century. This seems also in accordance to the context of most of the Oudenburg armlets: armlets nos. 8, 9, 10, 11, 15, 16, 17<sup>175</sup>, 19, 20 belonged to a context of fort level 5 or to the post-Roman level. Only armlet no. 18 derives from a context from fort level 4, dated to the later 3rd century.

The smaller bangles can be plain or decorated: three examples have a so-called dot-and-ring pattern (nos. 8, 9, 10), one has a so-called ridged-and-notched decoration (no. 11). The dot-and-ring armlets were one of the most popular forms in Britain, worn from the late 2nd century throughout the Roman period (Allason-Jones 1996, 32). The armlets nos. 8 and 10 look like real jet (but could not be analysed); the analysis for armlet no. 9 was not conclusive. The finds of cabled armlets in Britain suggest a wide distribution in *Britannia* in the 4th century. The British finds all appeared to be of jet and Allason-Jones believes that this type would have been difficult to carve in the other materials, which are prone to splitting when carved against the grain (Allason-Jones 1996, 31). Armlet no. 11, although not analysed and thus not confirmed, rather looks like a non-jet material.

Massive plain armlets were according to Allason-Jones more common in Germany than in Britain (Allason-Jones 1996, 33). Allason-Jones discovered they were mostly in shale and this appears to be confirmed by the Oudenburg assemblage. At Portchester, shale bracelets were particularly common. At least 37 bracelets were recovered from the 1961-1972 excavations. Except for some illustrated examples, most of them were plain and of circular or D-shaped cross-section (Webster in Cunliffe 1975, 228).

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<sup>175</sup> Chemical analysis concluded this item was made of shale (Cosyns and Ceglia 2016, 10).

No less than six armlets have a very small internal diameter ranging between 40 and 45 mm whereas the external diameter averages from 50 to 60 mm. A second group of bangles shows an internal diameter ranging between 50 and 70 mm whereas the external diameter averages from about 70 to 85 mm (Fig. 116). Recent research on Halstatt-armrings from Baden-Württemberg (G) demonstrates that the small diameter is to be referred to young girls up to about eight years old (Lehnert *et al.* 2014). These measurements refine the conclusions by Allason-Jones who takes 45 mm as the minimum for the average adult wrist; a smaller diameter was most likely intended for a child (Allason-Jones 1996, 35). Armlets nos. 8, 10, 11, 18, 19, 20 can therefore be considered as armlets for girls. Of these supposed child armlets of Oudenburg, one originates from fort level 4 (no. 18) – however not a closed context –, three belong to fort level 5 (nos. 8, 11, 20); the remaining two come from a later level.

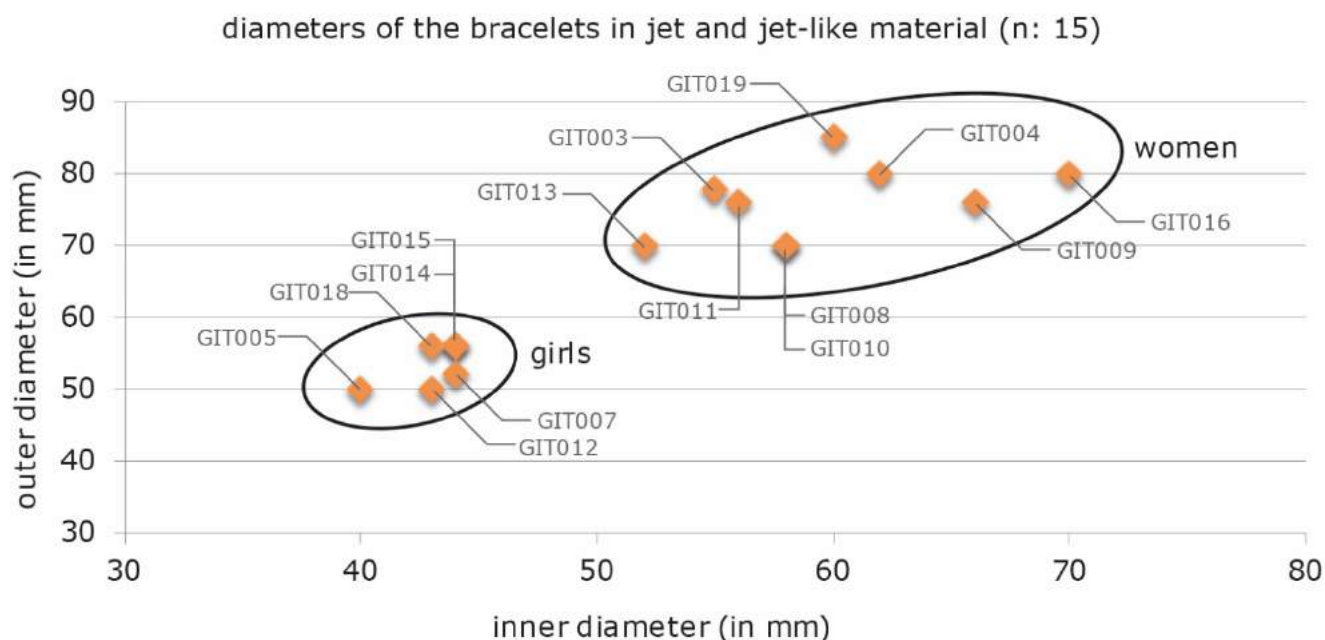


Fig 116: Comparison of the diameters of the jet and jet-like bracelets at the south-west corner site.

### 4.3. Beads

Only one single bead has been found at the south-west corner site (no. 5). It is a micro-annular bead (because of the diameter of less than 8 mm (Cosyns 2011, 107)) which was part of a segmented bead (Allason-Jones 1996, 26-27: 9-12), a type dated in the late 3rd and 4th century. The Oudenburg bead originates from fort level 4, dated to the later 3rd century.

## 5. Gaming pieces

The jet assemblage includes four gaming pieces (nos. 21-23 and one not ill. (GIT023)). All three counters show a central drilled-in perforation. Two counters (GIT023 (not ill.) and no. 21) have a plano-convex shape and correspond with Crummy (1983) Type 3. The flat counter no. 22 with minimal central perforation has parallels with Kenyon Type A or Crummy Type 1 (Crummy 1983, 91-92, Fig. 94, nos. 2238-2256). While the plano-convex counters know parallels in the glass counters, the flat ones are comparable to bone counters (Cosyns and Ceglie 2016, 8) (cf. Appendix 25, Section 3).

The small die no. 23, a not so accurately cut cube with sides ranging between 6 and 8 mm, shows the numbers in the conventional system in which the accumulated eyes of the opposite sides together form seven. Only one parallel was found at York (Allason-Jones 1996, 49), but similar

small dies are well-known in bone, although these are mainly slightly larger with sides ranging between 8 and 11 mm.

## 6. Spindle whorl

The only utensil in the jet assemblage is a spindle whorl (no. 24). Spindle whorls in jet or jet-like material are generally globular roundels with a diameter of less than 50 mm (Allason-Jones 1996, 47, nos. 296-298). The Oudenburg example is a disc with rounded edge decorated with a groove. Such discoid spindle whorls are common in ceramic, but do exist in shale (Crummy 1983, 67). The material of the Oudenburg find could not be tested.

## 7. Importance of the Oudenburg assemblage

The assemblage of jet and jet-like finds at the south-west corner site has strong implications. Firstly it represents significant material evidence for the presence of women and children at the fort precinct from fort level 4 onwards. Secondly, the occurrence of these jet and jet-like materials at the Oudenburg *castellum* most likely confirms the close connection with *Britannia* as through several pottery categories and can most likely be linked to troop movements at the Rhine and Danube Limes as could be revealed from the study of the bronze bracelets of graveyard A (see Sas 2004).

## 8. Catalogue of the jet and jet-like items

cat. no. / find no.	material confirmed by chemical analysis	FIND CATEGORY	FIND NAME	typology	PARALLELS and DISTRIBUTION	DATING	description	FIND CONTEXT	TYPE OF CONTEXT	FEATURE / LEVEL	FORT LEVEL	complete?	LENGTH in mm	WIDTH x THICKNESS in mm	INNER DIAMETER in mm	OUTER DIAMETER in mm	gender
1. GTO01	jet	PS	O&D hair pin	Alison-Jones (1996) type 206; Crummy (1983) jet Type 2	widespread distribution in Britain and Germany according to Alison-Jones 1996, 40; most popular type of hair pin, introduced from late 2nd to early 3rd century onwards; common until the 4th century (Alison-Jones 1996, 40)	IIc-IV	pin with cuboid faceted head, clear thickening of the shaft	OS 22635	posthole	OS 22635	4	almost complete, only point broken off	94.0 (head); 11.5 (thickening)	10.9 x 11.1 (head); 5.6 (below head); 7.3 (thickening)			
2. GTO20	jet*	PS	O&D hair pin	Alison-Jones (1996) type 202/206; Crummy (1983) jet Type 2	unknown in jet in Britannia, but well-known in bone; Crummy (1993) bone type 5 (Crummy 1983, 23-24) cf. South Shields for comparable finds, still attached onto bone pin; Alison-Jones & Hillel 1994, 79; p. 2, 443-445 cf. York; Alison-Jones 1996, 26; n. 9;	IIc-IV	upper half of pin with faceted elongated cable head, slight thickening of the shaft	OS 89058	fire layer unit	OS 80077	4	not complete	56.5 (head); 13.0 (thickening)	9.7 x 8.7 (head); 5.8 (pin below head); 6.5 (pin at thickening)			
3. GTO21	jet	PS	O&D hair pin	Alison-Jones (1996) type 202/206; Crummy (1983) jet Type 2	popular type in the late 3rd to 4th centuries (Alison-Jones 1996, 31, with references) lists parallels from York, South Shields (see also Alison-Jones & Hillel 1994: 7, 116-120), Silchester, Colchester and Wroxeter, suggesting a wide distribution in Britain in the 4th century	III-IV	upper half of pin with slender, straight shaft and wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	OS 7933	level	OS 7933	4	not complete	36.5 (head); 11.0 (thickening)	7.0 (head); 3.7 (pin)			
4. GTO27 (Bb.196)	jet	PS	O&D head of hair pin	undecorated disc, flat rounded	attached onto bone pin; Alison-Jones & Hillel 1994, 79; p. 2, 443-445 cf. York; Alison-Jones 1996, 26; n. 9;	III-IV	semi-rounded head with perforation on one side to form the head of a bone hair pin	OS 80925	pit	OS 80925	3	complete	8.0			10.5	
5. GTO06	jet or shale*	PS	O&D necklace bead	Alison-Jones (1996) type 9	popular type in the late 3rd to 4th centuries (Alison-Jones 1996, 31, with references) lists parallels from York, South Shields (see also Alison-Jones & Hillel 1994: 7, 116-120), Silchester, Colchester and Wroxeter, suggesting a wide distribution in Britain in the 4th century	III-IV	half of plain, tiny barrel-shaped micro-bead	OS 70863F	level 4	OS 70863F	4	fragment	2.1 x 1.1	1.5		3.6	women
6. GTO04	jet	PS	O&D armlet, cabled	Alison-Jones (1996) type 72/74; cf. glass armlet Cosyns (2011) type D2	one third of annular cabled armlet, very large bangle, with worn areas; C-sectioned bracelet with a pronounced, spiralled, ridge-and-groove decoration (S-twisted cable motif with wide cables)	III-IVa	fragment of annular cabled armlet, large (high, convex, rounded) with ridge-and-groove decoration (S-twisted cable motif with wide cables)	10908/8924	pit	OS 8924	5	fragment	8.8 x 8.5	c. 62	c. 80		woman
7. GTO13	shale*	PS	O&D armlet, cabled	Alison-Jones (1996) type 72/74	fragment of fine dot-and-ring decorated armlet with oval cross section (small flat section with rounded corners) (incised dot-and-ring decoration with a regular inner fragment of fine dot-and-ring decorated armlet with oval cross section (small flat section with rounded corners); incised dot-and-ring decoration on the topside with a regular inner spacing)	III-IVa	fragment of fine dot-and-ring decorated armlet with oval cross section (small flat section with rounded corners) (incised dot-and-ring decoration with a regular inner fragment of fine dot-and-ring decorated armlet with oval cross section (small flat section with rounded corners); incised dot-and-ring decoration on the topside with a regular inner spacing)	OS 2000L	level in dark earth	OS 2000L	post	fragment	7.0 x 9.0	52	70		women
8. GTO12	jet	PS	O&D armlet, dot-and-ring	Alison-Jones (1996) type 78-79; cf. glass armlet Cosyns (2011) type D2	one third of a fine dot-and-ring decorated armlet with a sub-triangular (small flat with rounded corners) cross-section (incised dot-and-ring decoration with a regular inner spacing along the outer face)	III-IV	fragment of fine dot-and-ring decorated armlet with oval cross section (small flat section with rounded corners); incised dot-and-ring decoration on the topside with a regular inner spacing	OS 8929	pit-filling	OS 8929	5	fragment	6.5 x 3.5	43	50		girl
9. GTO16	jet or shale*	PS	O&D armlet, dot-and-ring	Alison-Jones (1996) type 78-79; cf. glass armlet Cosyns (2011) type D2	one third of a fine dot-and-ring decorated armlet with a sub-triangular (small flat with rounded corners) cross-section (incised dot-and-ring decoration with a regular inner spacing along the outer face)	III-IV	fragment of fine dot-and-ring decorated armlet with oval cross section (small flat section with rounded corners); incised dot-and-ring decoration on the topside with a regular inner spacing	OS 4923	filling in of large basin after abandonment	OS 4975A	post	fragment	8.2 x 4.8	70	80		woman
10. GTO05	jet	PS	O&D armlet, dot-and-ring	Alison-Jones (1996) type 78-79; cf. glass armlet Cosyns (2011) type D2	one third of a fine dot-and-ring decorated armlet with a sub-triangular (small flat with rounded corners) cross-section (incised dot-and-ring decoration with a regular inner spacing along the outer face)	III-IV	fragment of fine dot-and-ring decorated armlet with oval cross section (small flat section with rounded corners); incised dot-and-ring decoration on the topside with a regular inner spacing	OS 4923	filling in of large basin after abandonment	OS 4903	post	fragment	7.3 x 4.6	40	50		girl
11. GTO15	coal?	PS	O&D notched armlet, ridged end	Alison-Jones (1996) type 95-102; cf. glass armlet Cosyns (2011) type D1 var. Crummy (2011) type D1	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	III-IV	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	OS 8921	level	OS 8921	5	fragment	5.6 x 4.2	44	56		girl
12. GTO03	coal?	PS	O&D armlet, plain	Alison-Jones (1996) type 95-102; cf. glass armlet Cosyns (2011) type D1 var. Crummy (2011) type D1	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	III-IV	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	OS 2905	layer	OS 2905	post	fragment	13.5 x 11.6	55	78		woman
13. GTO19	coal?	PS	O&D armlet, plain	Alison-Jones (1996) type 95-102; cf. glass armlet Cosyns (2011) type D1 var. Crummy (2011) type D1	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	III-IV	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	OS 80548	pit	OS 80548-550	5	fragment	14.2 x 12.0	60	85		woman
14. GTO11	jet or shale*	PS	O&D armlet, plain	Alison-Jones (1996) type 95-102; cf. glass armlet Cosyns (2011) type D1 var. Crummy (2011) type D1	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	III-IV	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	OS 40001	level in dark earth	OS 40001	post	fragment	9.4 x 6.7	56	76		woman
15. GTO08	jet or shale*	PS	O&D armlet, plain	Alison-Jones (1996) type 95-102; cf. glass armlet Cosyns (2011) type D1	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	IVb-V	one quarter of a plain annular armlet, with a wide, flat, faceted head (two parallel grooves creating three rings) with rossette-shaped terminal	OS 8907	level	OS 8907	5+post	fragment	6.6 x 5.5	58	70		woman

cat. no.	find no.	material (± confirmed by chemical analysis)	FIND DOMAIN	FIND CATEGORY	FIND NAME	typology	PARALLELS and DISTRIBUTION	DATING	description	FIND CONTEXT	TYPE OF CONTEXT	FEATURE / LEVEL	FORT LEVEL	complete?	LENGTH in mm	WIDTH x THICKNESS in mm	INNER DIAMETER in mm	OUTER DIAMETER in mm	gender
16.	GIT010	coal?	PS	O&D	armlet, plain	cf. glass armlet Cosyns (2011) type D1		IVB-V	half of fine plain armlet with oval cross-section (squad cubic section with rounded corners)	OS 4000P	level in dark earth	OS 4000P	post	fragment		6.8 x 5.2	58	70	woman
17.	GIT009	shale*	PS	O&D	armlet, plain	cf. glass armlet Cosyns (2011) type D1		IVB-V	c. one quarter of fine, plain armlet with oval cross-section (squad cubic section with rounded corners)	dark earth	level in dark earth	OS 4000H	post	fragment		6.5 x 4.6	66	76	woman
18.	GIT014	jet or shale*	PS	O&D	armlet, plain	cf. glass armlet Cosyns (2011) type D1		IVB-V	c. one third of fine, plain armlet with semi-oval cross-section (small squad cubic section with convex topside and V-shaped inner side) with ridge running around the inner face	OS 7983	level	OS 7983	4	fragment		5.5 x 4.7	44	56	girl
19.	GIT018	coal?	PS	O&D	armlet, plain	cf. glass armlet Cosyns (2011) type D1		IVB-V	fragment of fine, plain armlet with semi-circular cross-section (small squad cubic section with convex topside and V-shaped inner side) with ridge along the inner face	OS 8907	level	OS 8907	5+post	fragment		8.7 x 6.8	43	56	girl
20.	GIT007	jet or shale*	PS	O&D	armlet, plain	cf. glass armlet Cosyns (2011) type D1		IVB-V	half of fine, small, plain armlet (with small flat section with rounded corners), finished extra at interior by abrasion; cutting marks	OS 4923 VEB	large basin, filling in	OS 4998A	5	fragment		7.4 x 3.3	44	52	girl
21.	GIT026	jet	SL	G	gaming disc/counter	Crummy (1983) Type 3			complete, plano-convex disc with central perforation, with flat underside and rounded, slightly raised upper side, straight edge with uneven thickness, basal side polished but remains partly coarse	OS 7523a	construction slot	OS 7523a	4	complete	23.9	5.8		28	
22.	GIT025	jet	SL	G	gaming disc/counter	Crummy (1983) Type 1			complete, irregular round disc with flat basal side and slight concave topside with central perforation, rectangular cross-section, slightly raised, straight edge with rounded corners	OS 7523a	construction slot	OS 7523a	4	complete		3.5/4.0		16/18.5	
not ill.	GIT023	coal?	SL	G	gaming disc/counter	Crummy (1983) Type 3			small fragment of plano-convex disc with central conical perforation in the top side, with flat underside and raised upper side with rounded edge	OS 83307	posthole	OS 83307	2	fragment	23.4	5.8			
23.	GIT022	jet	SL	G	die	Allason-Jones (1996) type 314	cf. York; Allason-Jones (1996, 49) but no parallels were known by Allason-Jones		complete, hexagonal cube with irregular sides rendered with a numeral annotation in the middle and/or in the corners of the side, small die with the values indicated by deeply incised/drilled dot-and-ring motifs; the opposing faces add up to seven, like the majority of Roman (and modern) dice; some traces of a yellow-white material in the grooves suggest a contrasting inlay	OS 71310	large fire level, and fort level 4	OS 71310C	4	complete	7.8	7.1 x 6.2			
24.	GIT002	jet	P	TW	spindle whorl				complete annular spindle whorl with convex sides and with rounded corners, with flat underside and slightly rounded upper side, the exterior is decorated with a wide concentric groove	OS 4923 STORT	filling in of large basin after abandon	OS 4975	post	complete	31.0	7.5	6.0	31.0	

**PL** personal life  
**SL** social life  
**P** production  
**O&D** ornament and dress  
**G** gaming  
**TW** textile working

Table 78: Catalogue of the jet and jet-like items of the south-west corner site. Catalogue numbers refer to Plate CCCXXXIX.

## APPENDIX 25 - Glass finds at the Oudenburg fort

### 1. Introduction to the assemblage of the south-west corner site

The site at the south-west corner of the fort yielded 1039 glass fragments which can be dated to the Roman period<sup>176</sup> (Table 79). Scientific analysis on the isotopic compositions of some vessels, secondary molten glass and window glass samples from this site revealed the clear eastern Mediterranean origin of the raw glass (Ganio *et al.* 2012)<sup>177</sup>.

It is mainly the presence of the glass jewellery which is most important in view of the research questions envisaged in this thesis. These finds obviously tell a great deal about the identity, *in casu* gender identity, of part of the Oudenburg fort community. However, also some of the other glass finds yield information not covered by other find categories. The present text, based on the identifications by P. Cosyns (VUB-FWO) (Cosyns *forthcoming*), is not intended to give a fully detailed account of the glass finds. It is our aim to focus on the glass items that can attribute to a better understanding of the everyday life of the fort inhabitants and of their identity.

LEVEL	utensil	jewellery	gaming pieces	vessel	window glass	secondary molten glass	not diagnostic	production?	TOTAL
L1				1					1
FL2				10	7		1	1	19
FL3		3	3	46	51	7		1	111
FL4	3	8	1	136	42	29	5		224
FL5		7		104	39	17	59	1	227
5+POST / POST		17	2	281	134	18	5		457
TOTAL	<b>3</b>	<b>35</b>	<b>6</b>	<b>578</b>	<b>273</b>	<b>71</b>	<b>70</b>	<b>3</b>	<b>1039</b>
%	0,3	3,4	0,6	55,6	26,3	6,8	6,7	0,3	100

Table 79: Distribution of the glass categories according to the stratified evidence, based on fragment count; cross joining fragments are counted as one.

### 2. Utensils

A small, thin, mirror glass with a diameter of c. 3.5 cm was found at fort level 4 (Fig. 117). It displays an average size as most mirror glasses have a diameter between 3.0 and 5.0 cm (Van Buchem 1976, 11; Lloyd-Morgan 1981, 152). Although the first known reference to glass mirrors already occurs in Elder Pliny's *Natural History*, the earliest dated examples belong to the 2nd or 3rd century AD (Lloyd-Morgan 1981, 152). These circular and convex glasses were set in metal or wooden frames; the perishableness of the latter may well explain the considerable number of loose glass mirrors found at several 3rd and 4th century cemeteries<sup>178</sup> (Lloyd-Morgan 1981, 152). Since

<sup>176</sup> In total 1094 glass fragments were collected of which 56 pieces from the post-Roman dark earth level could be identified as post-Roman. Four items were classified as early medieval (one red brown opaque cylindrical bead, possibly of Germanic origin; one red opaque cylindrical bead dated to the 6th-7th centuries), besides two ironing glasses (5th-10th centuries), two painted window glasses from the 12th to 14th centuries, six medieval to post-medieval fragments and 44 modern to recent items. Of the latter two groups most of the fragments are window glass.

<sup>177</sup> Within the framework of the PhD research by A.-I. Bidegaray (VUB-SURF/SKAR) further material science based research involving optical and chemical analyses methods is planned on 94 selected samples including windowpanes and vessel glass in decolourised and pale naturally coloured glass. The research aim of this set of samples is to define the subsequent ratios of imported Egyptian and Levantine glass as well as the impact of recycled glass throughout the various levels within the Roman fort.

<sup>178</sup> For example, at the south-west graveyard at Tongeren a glass mirror was found in grave 96 (find no. 12) (2nd half 4th century), in grave 106-107 (find no. 2) (2nd half 3rd century), in grave 141 (find no. 5) (1st half 4th century) and grave



the Oudenburg find originates from the large waste-pit OS 4980 and clearly represents discarded material, further specific conclusions on its use are difficult to draw. However, where this could be anthropologically confirmed, such mirror glasses found in cemeteries appear to only occur in female graves<sup>179</sup>. The gender attribution of this find adds another marker for female presence within the fort walls in the late 3rd century.

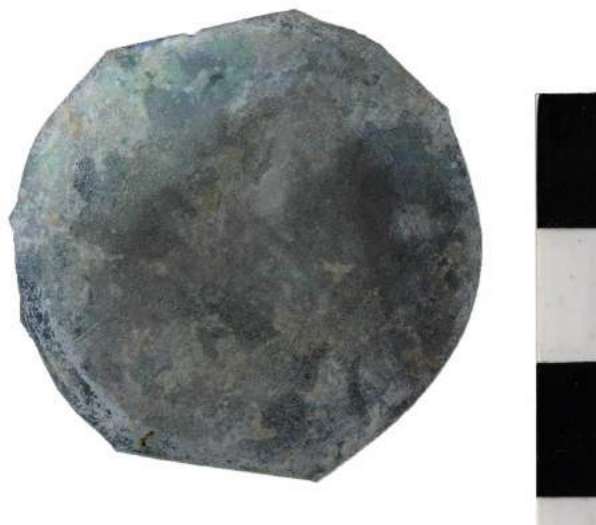


Fig 117: Small mirror glass from the primary infill of the large waste-pit OS 4980.

Fragments of two lamps of Isings (1957) type 134, traditionally categorised within the vessel group, should also be considered here. Both fragments originate from fort level 4, however neither is from a closed context. It is worth mentioning that in the ceramic assemblage only one possible oil lamp could be discerned, in Lower Nene Valley colour-coated ware (Appendix 11, Section 3.6: cat. no. 96). The metal assemblage yielded some lighting devices, although not numerous. A small, open lamp (Plate CCXCI: IR.D049), a presumed candle stand (IR.D050) and a lamp hook (IR.D052), all three in iron, also belong to fort level 4. An iron, hook-shaped, curled terminal may possibly be the handle of a candlestick or lamp and was collected at the top of the Roman level (IR.D051). In copper alloy, three candlesticks were preserved, two of the symmetrical 'hour-glass' type (CA.D001 and D002) and one of the type with two truncated conical parts constricted in the middle (CA.D003). The latter and one of the 'hour-glass' candlesticks were found in contexts of fort level 4; the other cannot be assigned to a specific level. Eckardt has demonstrated that candlesticks increasingly replaced lamps in the later Roman period in Roman Britain (Eckardt 2011, 187). It is striking that most of the lighting devices were retrieved from fort level 4, the level of the workshops in this part of the fort.

### 3. Gaming pieces

The glass counters, all of plano-convex type, are to be considered in connection with the counters made of other materials found at the south-west corner fort site (Table 80).

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208 (find no. 3) (first half 3rd century) (Vanvinckenroye 1984). At the eastern graveyard of London, grave B183 (find no. 1) (2nd quarter 2nd – first half 3rd century AD) and grave B197 (find no. 6) (last quarter 2nd – 3rd century AD) both contained a glass mirror (Barber and Bowsher 2000). Also two graves from Arcis-sur-Aube (F) and dated to the 2nd half of the 3rd century both yielded a glass mirror: grave 113 (find no. 99) and grave 125 (find no. 56) (Cabart 2004).

<sup>179</sup> Both graves 96 and 141 at the south-west graveyard at Tongeren belonged to women; the data from graves 106-107 and 208 were inconclusive but point to women as well (Vanvinckenroye 1984). Both graves from Arcis-sur-Aube were female graves (Cabart 2004) and grave B183 from the London cemetery also belonged to a woman. One exception is the burial B197 of London: although buried with all female attributes, the skeleton appeared to be of a man (Barber and Bowsher 2000).

LEVEL	GLASS COUNTERS	JET COUNTERS	BONE COUNTERS	CERAMIC COUNTERS	DISCS MADE OF CBM	STONE COUNTERS	TOTAL
L1							0
FL2		1		2	1		4
FL3	3		3				6
FL4	1	2		4	2		11
FL5			1	1	4		6
5+POST/POST	2		1	3	5	4	15
TOTAL	6	3	7	10	12	4	42

Table 80: Overview of the counters from the south-west corner site arranged by fort levels; comparison of the different materials.

The three jet(-like) and the seven bone gaming pieces can possibly be seen as 'cheaper' or convenient imitations of the glass counters. With nine counters made of reworked pottery sherds<sup>180</sup>, twelve discs retrieved from ceramic building material and five made of stone<sup>181</sup>, the total of the counters at the south-west corner site can be set on 42, a number which can be expected on a military site since gaming was a known leisure activity for soldiers<sup>182</sup>. In his *Ars Armatoria* (II, 208) and his *Trist* (II, 478-488) Ovid mentions the game *ludus latruncularum*, the 'soldiers' game', for which coloured glass counters were used and which was played on a squared board, while Isidore in his *Origines* (XVIII, 60 and further) speaks about the game *tabula* or *alea*, a modern version of backgammon with fifteen pieces for each player (Allason-Jones and Bishop 1988, 82).

The Oudenburg glass, jet(-like) and bone counters together with the counter fragment in flintstone seemingly from the same type, distinguish themselves from the rest of the gaming pieces in being small and refined, and intentionally made to serve as counters. The discs reworked from pottery sherds and ceramic building material were clearly *ad hoc* manufactures. The gaming pieces of the ceramic building group comprise mostly larger examples indicating that different games were 'in play', although it cannot be ruled out that some of these discs may have been used as lids on vessels<sup>183</sup>.

#### 4. Window glass

The larger fragments of window glass point to the use of large rectangular and/or square windowpanes. The average modules of these windowpanes generally ranged between 30 and 50 cm (Deva Fontaine and Foy 2005, 22-23; Vanpeene 2005; Cosyns 2005). The spatial distribution of the window glass fragments at the site, forming c. 26.3% of the glass assemblage (Table 79), does not yield any information on the function of the structures. The absence of window glass at level 1 most likely indicates that windows of the soldiers' barracks of this period were closed with other material than glass sheets, although the presence of glass windowpanes at the soldiers' barracks cannot be completely ruled out as these glass sheets could have been taken away easily when the fort was abandoned or recovered and re-used in the following period.

Glass windowpanes can be assumed though for the military hospital of fort level 2. This must also have been the case for the bath house of fort level 5. One window glass fragment from fort level 5, two from the transition top Roman level/dark earth and four fragments from the post-Roman

<sup>180</sup> Three were made from samian sherds, two from amphorae sherds, two from coarse reduced sherds, one from a colour-coated sherd and one from a handmade sherd.

<sup>181</sup> Two were roughly made of slate, one of Tertiary sandstone, one of a flintstone and one was made of a boulder. The fragment of the flintstone disc resembles well the convex types in bone, glass and jet and is very likely to be of Roman date. It cannot be excluded that the other stone pieces all found in the post-Roman level are of post-Roman date.

<sup>182</sup> In three graves from the late Roman military graveyard A of Oudenburg one or more counters were deposited next to the deceased. Grave 31 contained seven ivory counters and one made of bone and glass, next to a bone dice; grave 44 and grave 143 both yielded one counter, respectively in bone and glass (see Mertens and Van Impe 1971). A complete or nearly complete set of gaming stones was found together with weapons, armour and other objects in a wooden chest known as the hoard of Corbridge (UK) (Allason-Jones and Bishop 1988, 82).

<sup>183</sup> The ceramic building material disc belonging to fort level 2 was engraved by two perpendicularly crossing lines on its top side, possibly representing some kind of significance in the game.

level revealed mortar remains; one fragment from the post-Roman level even with pink, hydraulic mortar. These finds most likely belonged to the 4th-century bath house.

Further contextual analysis seems not possible, as the material is found as discarded fragments and primarily due to the high residual factor obvious in all find categories of the site. Whether or not the window glass fragments from fort level 3 and 4 represent discarded material from that level or have to be seen as residual fragments from the preceding military hospital, cannot be deduced from the material.

## 5. Vessels

The 522 vessel items, encompassing 578 fragments or 55.7% of the glass assemblage, are represented in all levels, but only in the case of 220 items could the vessel form be defined (Table 81).

LEVEL	<i>aryballos / unguentarium</i>	flask	cup	beaker	bowl	plate	bottle	jug / jar	TOTAL
<b>L1</b>							1		1
<b>FL2</b>	2			2	1				5
<b>FL3</b>	1				4		14		19
<b>FL4</b>	2	2		7	8	1	32		52
<b>FL5</b>	3	2	1	8	10	2	11	1	38
<b>5+POST / POST</b>	2		3	12	42	11	30	5	105
<b>TOTAL</b>	<b>10</b>	<b>4</b>	<b>4</b>	<b>29</b>	<b>65</b>	<b>14</b>	<b>88</b>	<b>6</b>	<b>220</b>
%	4,5	1,8	1,8	13,2	29,5	6,4	40,0	2,7	100

Table 81: Distribution of glass forms according to the stratified evidence.

Level 1, including pre-fort and fort level 1 features, yielded just one item. The lack of more material at this level and the fact that hardly any glass item yielded clearly pre-dates the second half of the 2nd century – beginning 3rd century, possibly signifies that the residual portion originating from the older settlement features is to be considered as minimal. This may also indicate that the pre-fort settlement area where the fort was built did not form part of the core of the *vicus* (which can also be deduced from the preserved features) which should be located to the west of the fort. It can however also imply that the settlement only extended this far not earlier than the second half of the 2nd century and that the related glass has been found only as residual finds in later levels. The only clear residual piece from the settlement is a fragment of an ultramarine so-called circus beaker form Trier 34 (Goethert-Polashek 1977) depicting a *quadriga*. It was recovered from the dark earth and was therefore possibly brought in from outside the fort in post-Roman times. Since these circus beakers were only produced during a very short period, namely the third quarter of the 1st century, but possibly still in use until the end of that century (Hanut 2010, 143), this piece originates from the earliest phase of the civil settlement.



Fig 118: The fragment of a 1st-century so-called circus beaker recovered from the dark earth level.

It is not surprising for a military site that the common tableware and storage ware, respectively the bowls (30%) and bottles (40%), dominate the glass vessel spectrum (Table 81). All the bowl fragments can be identified as type Isings (1957) 96; the prismatic bottle Isings (1957) 50 dominates the bottle group with 72.6%. Since this bottle type was produced not later than the end of the 2nd – early 3rd century AD, it can only be related to the first (fort) level, although the second fort level cannot be ruled out completely. Its presence well-spread throughout the Roman level (one at level 1, twelve in level 3, 25 in level 4, ten in level 5 and 21 in the post-Roman level) is therefore indicative for the residual aspect of the material recovered at the site.

Important to notice is the presence of the *aryballi/unguentarii*, here classified as one category since some small fragments cannot be conclusively categorised. Both forms, containers for oils, perfume, liquids and/or powder, may be related to the military hospital of fort level 2 and the bath house of the 4th century.

## 6. Secondary molten glass and secondary glass production?

A considerable quantity of secondary molten glass items was collected, numbering 71 in total. They should not, however, be related to glass processing; instead they must have been deformed as such by way of heavy firing. This is confirmed by the thirteen additional molten fragments in which part of a vessel can still be recognised: one originating from fort level 2, two from fort level 3, eight from fort level 4 and one each from fort level 5 and from the post-Roman level. Glass only deforms at a very high temperature from about 700 °C onwards when the classical Roman silica-soda-lime glass reaches its softening point (Stern 1995, 34-37, figs. 16-17B); this can only be achieved in a very heavy, long-lasting fire of at least twelve, preferably 24 hours (pers. comm. P. Cosyns). The 37 secondary molten glass items from fort level 4 of which several items originate from the fire layer ending this level, are significant in this perspective. They appear to be signifying evidence for a fierce enduring fire representing the end of this fort occupation.

Three burnt clay fragments found as loose, discarded finds show glass parts which cannot be identified as sintering of clay. Whether these remains refer to artisanal firing activities still needs to be investigated but the potential for the presence of a secondary glass workshop is rather doubtful. It is more likely that these finds relate to the remains of timber-framed barrack walls which were severely burnt and in which the edge fragments of windowpanes survived to be affected in this manner.

## 7. Jewellery

Important in light of the focus on the research questions envisaged in this thesis, specifically considering the gender debate, is the presence of the glass jewellery (Table 82; Table 83: catalogue; Fig. 122-123). These finds count for in total 35 items. The bead and armlet – the latter not in a closed context – from fort level 3 appear to be rather isolated finds. From fort level 4 onwards however, the jewellery – although not in large quantities – is clearly present, well-spread over the area.

LEVEL	bead	armlet	hair pin	TOTAL
L1				0
FL2				0
FL3	1	1		2
FL4	6	2		8
FL5	2	5		7
5+POST/ POST	8	9	1	18
TOTAL	17	17	1	35

Table 82: Glass jewellery items at the south-west corner site: distribution according to the stratified evidence.

Apart from the polychrome blue bracelet fragment (no. 2), all armlets were made of black glass (Fig. 122). Funerary contexts have shown that they were exclusively intended to be worn by girls and (young) women, and only on the left wrist (Cosyns 2011, 282). The armlets type Cosyns A, B and C (see catalogue Table 83) are characteristic for the beginning of the 3rd century onwards until the middle of the 4th century. The type A and B armlets are therefore all found as residual finds and cannot attribute to chronological conclusions. The two type C3 armlets, found at level 3 and 4, represent the early phase of this type around the middle of the 3rd century. Armlet type D is the characteristic type from the second half of the 4th century AD onwards, which coincides with the respective find contexts: all type D armlets were found at level 5 or later.

Worth mentioning are the two black armlets found by Mertens (unpublished material) (Fig. 119). While the find context of the open armlet (type Cosyns C3a) is uncertain, the closed armlet (type Cosyns D1) was retrieved in 1960 during the research on the western defence system<sup>184</sup> in Trench XXV at excavation level 2 from a top layer of the earthen wall which most probably dated to fort level 4 or 5. The latter, a very fine and narrow bracelet with an inner diameter of 45 mm, was clearly intended for a girl<sup>185</sup>.



Fig 119: Two black glass armlets found in the northern sector of the Oudenburg fort in 1977.

<sup>184</sup> The find number 60/OU/10 in the archive '1960 Mertens' only mentions one glass bracelet, named 'glass ring', referring to the narrow closed armlet. The other bracelet, although stored in the depot of the Flanders Heritage Agency under the same find number, probably originates from another find context of which the data are now lost.

<sup>185</sup> However, there have been suggestions in the past that smaller annular rings were not used as bracelets but as hair rings, dress fasteners, belt dividers or teething rings (cf. Lawson 1975, 24; Allason-Jones 1996, 35).

Although the polychrome blue bracelet fragment no. 2 can be a British import (see Price 1988), it cannot be ruled out that it has a Celtic origin. One of the beads dates to the Iron Age. This bead (Fig. 120), recognised as a '*Perle mit Punktaugenzier*', can be dated to the La Tène C2 and La Tène D1 period (2nd – 1st century BC) (Zepezauer 1993, 84-85); this find at fort level 4 is therefore clearly an anomaly. Since no Iron Age site pre-dates the fort and the civil settlement, this find should be considered as an intentionally collected item. Curating found old items is a known phenomenon; several Roman and Merovingian cemeteries yielded beads and armlets from the Iron Age. These items may possibly be considered as protective amulets (Haevernick 1970).



Fig 120: A La Tène glass bead recovered from fort level 4 at the south-west corner site.





Fig 121: The glass beads of a presumably complete necklace (here reconstructed as such) from fort level 4 at the north-east corner site of the Oudenburg fort.

The emerald green and cobalt blue glass beads represent the classical repertoire of the 3rd and 4th century on the Continent. While the south-west corner fort site only yielded loose beads (Fig. 123), a presumably complete necklace of glass beads was found *in situ* at the north-eastern fort site (site Jacali) in a destruction layer most likely related to the end of fort level 4<sup>186</sup> (Fig. 121).

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<sup>186</sup> The necklace was found directly to the south of the northern construction slot of the structure of the third occupation level at site Jacali which can be identified as fort level 4 (Vanhouette *et al.* 2014, 239: Fig. 83).



Fig 122: Black bracelets from the south-west corner site. The numbers refer to the catalogue.

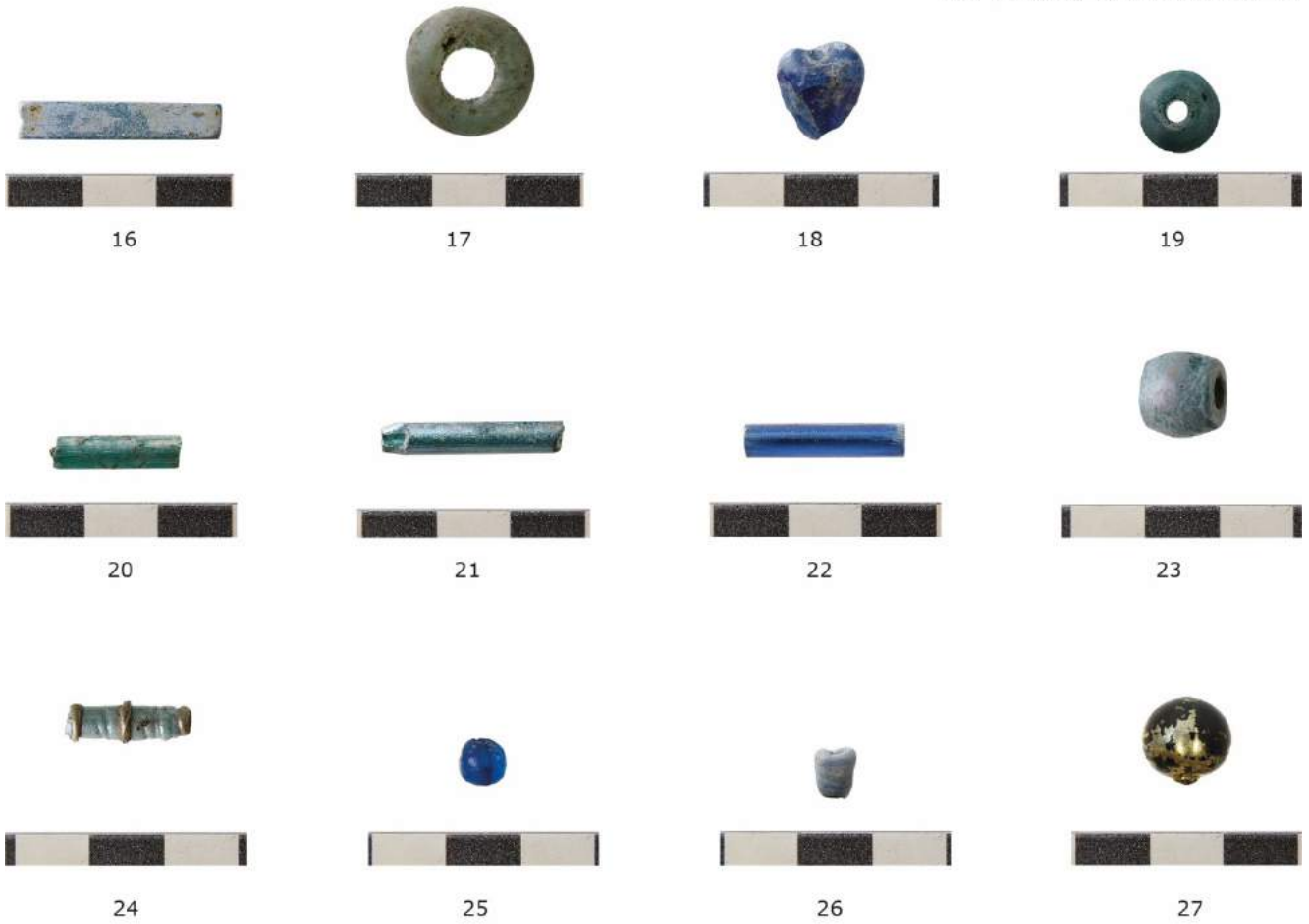


Fig 123: Glass beads and head of hair pin from the south-west corner site. The numbers refer to the catalogue.

## 8. Catalogue of the glass jewellery OF the south-west corner site

FIG.	FIND NUMBER	FIND NAME	FIND TYPE (typology)	DATING	description	FIND CONTEXT	TYPE OF CONTEXT	FEATURE / LEVEL	FORT LEVEL	complete?	LENGTH in mm	WIDTH in mm	THICKNESS in mm	INNER DIAMETER in mm (ND: too small to determine)	OUTER DIAMETER in mm (ND: too small to determine)
1.	GLAS0084	armlet	Cosyns (2011) type C3	III-IVA	fragment of black/green armlet with three lengthwise ribbings; open-elliptical type	OS 1900	pit	OS 1786	3	1/3	57.1	20-25	7-11.3	ND	ND
2.	GLAS0173	armlet	Cosyns (2011) type A1 or British? IB-III	III-III	fragment of open ellipse shaped plain armlet, deep blue with white opaque lines, O shaped section	OS 4980 I	large waste pit, primary filling	OS 44903	4	1/4	49	6-9		72	90
3.	GLAS0002a-b	armlet	Cosyns (2011) type C3	III-IVA	two joining fragments forming complete black/green open armlet with three lengthwise ribbings; open-elliptical type	OS 1207 - OS 80913	layer - pit	OS 1207 - OS 80913	3 - 4	complete		8.6-14.5	4-8.5	40-53.7	
4.	GLAS0400-0697	armlet	Cosyns (2011) type A1	II-IVA	two joining fragments of black/green plain armlet with round (O-shaped) section and with joint	OS 4923 - OS 4000L	large water-basin, primary filling in	OS 4998C - dark earth level	5 and post	c. half	66.8	6.6-7.5		66.5	80
5.	GLAS0025	armlet	Cosyns (2011) type A2	III-IVA	fragment of black/green open ellipse shaped armlet, with wide twists	OS 2562.8	double well, construction pit	OS 22917	5	fragment	52.3	9.3-11.1		ND	ND
6.	GLAS0303	armlet	Cosyns (2011) type B2	II-IVA	fragment of profiled, black/green armlet notched with indented spatula	OS 8905A	level	OS 8905	5(+4)	fragment	33.4	10.4-14.1	5.5-7	ND	ND
7.	GLAS0441	armlet	Cosyns (2011) type B2	II-IVA	fragment of broad, black/green armlet with D shaped section, notched with indented spatula	OS 22429	layer	OS 22429	5	fragment	35	13-18		ND	ND
8.	GLAS0024	armlet	Cosyns (2011) type D1	IVB-VA	fragment of black/green annular (closed) armlet with D shaped section	OS 2562.2	double well, primary filling in of inner well	OS 24904	5	c. one quarter	40.9	6.0-6.1	3.8	40	48
9.	GLAS0644	armlet	Cosyns (2011) type A4	III-IVA	fragment of black/green armlet with alternating plain - twisted decoration; open-elliptical type	dark earth	level	OS 4000F	post	c. half	67	6.5-11		42-53	68
10.	GLAS0521	armlet	Cosyns (2011) type A5	II-IVA	fragment of black/green armlet with alternating fine-wide twists	OS 4923S	secondary debris layers filling in large water-basin	OS 4911	post	c. one quarter	42	9		52	70
11.	GLAS0630	armlet	Cosyns (2011) type B1	III-IVA	fragment of black/green broad plain armlet with wide D shaped section	OS 2100	large pit	OS 2100	post	c. one quarter	58.9	14.4	5.8	70	82
12.	GLAS0462	armlet	Cosyns (2011) type D1	IVB-VA	fragment of narrow, closed, black/green armlet with D shaped section	OS 8902	level	OS 8902	5+post	fragment	21.5	4	5.3	ND	ND
13.	GLAS0514	armlet	Cosyns (2011) type D1	IVB-V	fragment of narrow, closed, black/green armlet with D shaped section	OS 4923S	secondary debris layers filling in large water-basin	OS 4000N/4903	post	fragment	27.8	6.3	4.1	ND	ND
14.	GLAS0673	armlet	Cosyns (2011) type D1	IVB-V	fragment of narrow, closed, black/green armlet with D shaped section	dark earth	level	OS 4000J	post	c. one third	54.3	6.4-6.7	3.6-3.7	57	75
not ill.	GLAS0675	armlet	Cosyns (2011) type D1	IVB-V	fragment of narrow, closed, black/green armlet with D shaped section	dark earth	level	OS 4000J	post	small fragment	14.4	6.6	3	ND	ND
15.	GLAS0771	armlet	Cosyns (2011) type D1	IVB-V	fragment of narrow, closed, black/green armlet with D shaped section	dark earth	level	OS 4960	post	c. one third	50.9	6.1-6.9	4.0-4.2	57	65
16.	GLAS0008	bead	bar shaped	III-IV	blue, bar shaped bead	OS 7985	level	OS 7985	3	complete	26	4.5			
not ill.	GLAS0184	bead	small spherical	III-Va	small, blue, spherical bead	OS 7949	pit Unit I	OS 7949	4	complete				2	6.8
not ill.	GLAS0142	bead	small spherical	III-Va	fragment of small, blue, spherical bead; damaged sides, only half of bead preserved	OS 4940	level	OS 4940	3+4	complete		57		1.5	0.6 to 0.8?
PHOTO	GLAS0180	bead	large annular	II-I BC	large, deep blue, ring shaped bead, slightly triangular shaped with three green with white bordered corners	OS 7927	hearth	OS 7927.12	4	complete				6	22
17.	GLAS0282	bead	medium-sized annular	I-V	medium-sized, green, ring shaped bead	OS 71326	layer	OS 71326	4	complete				7	16.6
not ill.	GLAS0895	bead	micro bead	IIIB-Va	small, blue, spherical bead	OS 7948	level	OS 7948	4	complete	4.7			1.25	6.8
18.	GLAS0009	bead	heart shaped	III-IV	blue, heart shaped bead; damaged sides	OS 7966	level	OS 7966	4	complete	13.5	11.7			
19.	GLAS0417	bead	biconical annular	III-IV	blue green biconical ring bead	OS 2563	layer	OS 2563	5	complete		6.3		3	11
not ill.	GLAS0302	bead	oval	III-IV	half of oval, pale blue bead with grooves	OS 7044IV-V	pit	OS 7950C	4+5	preserved	14				
20.	GLAS0482	bead	long cylindrical	III-IV	medium-sized, green, tube shaped, cylindrical bead; iron wire of necklace still preserved in cavity; broken off at both sides?	OS 8907	level	OS 8907	5+post	complete	17.8			1	4.6
21.	GLAS0468	bead	long cylindrical	III-IV	medium-sized, pale blue, tube shaped, cylindrical bead; broken off at both sides?	OS 8907	level	OS 8907	5+post	complete	24.5				4.5
22.	GLAS0006	bead	long cylindrical	III-IV	blue, tube shaped, cylindrical bead	unstratified		unstratified	unstratified	complete	24.4				4.2
23.	GLAS0502	bead	short cylindrical	III-IV	blue, short cylindrical bead with convex sides	OS 4171	Carolingian pit	OS 4171	post	complete		10		4.2	11
24.	GLAS0007	bead	cylindrical, ribbed	III-IV	pale green tube shaped bead with three gold coloured ribs	OS 30901/30902	robber trench of defensive wall	OS 3022	post	complete	16.5				c. 4
25.	GLAS0664	bead	small spherical	III-Va	small, blue, spherical bead; damaged side	dark earth	level	OS 4000H	post	almost complete	6.1			1.2	6.4
26.	GLAS0733	bead	small conical	III-IV	polychrome blue, small, conical, tube shaped bead	dark earth	level	OS 2.2bis K	post	complete	7				5.7
not ill.	GLAS0729	bead	micro bead	late Roman	small, blue, annular bead	dark earth	layer	OS 1.2 (13)	post	complete				0.5	5.2
27.	GLAS0461	hair pin	Cosyns (2011) variant A	II-IVA	black/green spherical head of hair pin with broken off metal pin	OS 7938	pit	OS 7938	5+post	complete	11	12			

Table 83: Catalogue of the glass jewellery of the south-west corner site. Catalogue numbers refer to Fig. 122-123.

## APPENDIX 26 - Figurines at the south-west corner site: a glimpse on the religious life at the Roman fort (By J. De Beenhouwer<sup>187</sup> with a contribution by S. Vanhoutte)

### 1. Introduction to the assemblage

The south-west corner site yielded a very small, but interesting assemblage of figurine fragments. In total nine individuals can be counted in terracotta, one in stone and three in copper alloy (Plates CCCXL-CCCXLI). They give an idea, although very limited, of the religious life of the army units. Moreover, they also represent some additional information on (trade) network routes to the fort.

### 2. Mould-casting terracotta figurines

#### 2.1. Two nursing mothers from the Central-Gaulish pottery centre of Priscus

Fragments were found of two figurines of a nurse/mother belonging to the same production series. This signifies that they originate from the same initial model that was reproduced more or less unchanged. Often, a new mould was made from a finished figurine, maybe because the original model was broken or maybe because the copy was made in another workshop. As the mould was made of an existing figurine, the new model was always a bit smaller than the original one, simply because of the shrinking of the clay during the firing in the furnace. Therefore several generations can be found of a series, recognisable from the varying sizes. Commonly, the largest figurines are the earliest; they resembled the original model the most and were the best detailed ones.

The representation of the Oudenburg figurines is that of a sitting woman with two children at the uncovered chest (*nutrix*). The dress falls down in supple folds; the chair is made of vertical wickerwork with the twigs forming a herringbone motif.

Of this representation several series were made, but for this series it is typical that the angle of inclination of the children is 60° and 120° (De Beenhouwer 2015, 569: series 338). The children hence form a corner of 60°. The feet of the children are separated from each other. The dress of the woman falls on each leg in three V-shaped folds on top of each other. Her hair is fixed in a bob on top of the head and turns into a hair bread on the back of the head.

The first individual (no. 1) consists of three fitting fragments of the head and the shoulders and a loose fragment of the chest (De Beenhouwer 2005, no. 819) (fragment with head and shoulders: 7.1 cm high, 3.8 cm max. width; chest fragment: 2.5 x 2.2 cm). They were found in levelling layers assigned to the construction of fort 5 and were situated close to the western earthen rampart. These layers were covered by a layer of fine mortar/loam gravel that has been identified as the running surface of fort level 5A. From the second individual (burnt) (no. 2), only the front of the lower legs and the right side of the chair is preserved (1.9 cm high; 4.0 cm wide; 4.3 cm max. length). It was found in a mixed level (5+post) in the transition layers at the top of the Roman level with the post-Roman level, but in the same area as the first individual.

Figurines from the same series as the one of the Oudenburg fragments are known from several sites. A first example is a fragment of a mould from France of which the find context is not known (preserved in the museum of Moulins MAB) (Lange 1990, 77, no. 34; De Beenhouwer 2005, 569, no. 3853). On the mould fragment the front of the head of the woman, the children at the chest and a part of the right leg are visible. On the back the inscription PR[ISCVS] can be read, possibly

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<sup>187</sup> This text is a modified translation from Dutch into English by the thesis author of a detailed report by De Beenhouwer (2017).

the owner of the mould who was at the same time the producer. Besides the 'sitting woman with child' the repertoire of this producer also comprises several Venus series. He also made figurines of pigeons, chickens and cocks. In total 53 mould parts are known with the signature PRISCVS X or PRISCVS, and one statuette with the signature PRISCVS (Jeanlin in Bémont *et al.* 1993, 119). The most important site with twenty mould parts is Toulon-sur-Allier, both the workshop at Champ Lary as the one at La Forêt. Mould parts were also found at the production centres of Saint-Pourçain-sur-Besbre, Vichy, Yzeure Saint Bonnet and Moulins. Some signed fragments were recovered at Aulnay, Chanteau, St-Just/Dive et Sens, sites that are not known as production centres. The study of the evolution of the production by Priscus has concluded to a very long activity of the 'brand' Priscus, at least during the whole 2nd century (De Beenhouwer 2005, 886-888). A second example of the same series as the Oudenburg statuettes is a complete figurine with traces of burning found at the Hees cemetery near Nijmegen (Schauerte 1985, 334-335, no. 941, Taf. 112: 1-3; Van Boekel 1987, 485-486, no. 87; De Beenhouwer 2005, 569, no. 3844). It was made in the same way as the one of Oudenburg. The foot was closed off with a separately made covering plate. To prevent that the statuette would explode in the furnace, an air hole was perforated in the left side arm of the chair. The foot plate and the air hole are not preserved at the Oudenburg figurines. Just like the fabric of the fragments of Oudenburg, the figurine of Nijmegen is slightly micaceous. The cemetery of Hees was in use until c. AD 280. At Velzeke the front of the head of a third example of the same series was found, in a pit in the central territory of the *vicus* that can be dated in the 3rd century (Rogge 1978, 122, no. 1, Pl. X: 1 a-b; Lamarcq and Rogge 1996, 170, fig. 4; De Beenhouwer 2005, 304, 569, no. 1128).

One of the Oudenburg fragments was found in a level dated to the start of fort level 5, in the early 4th century; the level of the other fragment dates to the early 5th century or even later. It indicates that both fragments can be considered as residual items in these levels. The size of the Oudenburg fragments conclude to a later generation of the figurines than the one from Nijmegen. The reduction in size of the first individual can be estimated at c. 6%, that of the second at c. 20%, which points to a later date than the statuette of Nijmegen. It is therefore possible that the Oudenburg figurines belonged to the later 3rd century and that they were dug-up from fort level 4. It is possible that the series was still produced until late in the 3rd century although Priscus himself, the owner of the original moulds, was working in the 2nd century. Another remarkable constatation is the distribution of the statuettes from Central Gaul to sites as Velzeke in the hinterland and two military sites, Oudenburg<sup>188</sup> along the North Sea and Nijmegen along the Rhine Limes.

## 2.2. A fragment of a statuette from Central Gaul

A small fragment with a max. length of 3.6 cm shows at one side dress folds with on top the horn-shaped end of an attribute (no. 3). The figurine was certainly imported from Central Gaul according to the barbotine remains on the break of the seam where the two halves join. It is characteristic for the Central-Gaulish workshops that both halves were first taken out of the moulds to be subsequently glued together with clay slip. On the Oudenburg fragment a small part of the seam is preserved at the side of the dress folds where remains of the clay slip can be recognised. The fragment was found in a pit of fort level 3.

## 2.3. Fragments of three statuettes from the Rhineland

Three figurines originate from the Rhineland. The very specific production method in use at the Rhineland workshops led to traces at the surface of the statuettes. In contrast to the method at the Central-Gaulish production centres, most of the figurines of the Rhineland were made in plaster

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<sup>188</sup> At least three figurines of nursing mothers are known from the civil settlement at Oudenburg. One complete statuette was found to the south/south-east of the fort (site ET13/ET14; Hollevoet, unpublished material, on display in the Roman Archaeological Museum RAM at Oudenburg). Two figurines were recovered at the 2007-2009 excavations to the east of the fort (site Riethove, ET26): one lower part of a *nutrix* statuette in well 34 dated to the first half of the 3rd century, one woman head of a statuette, probably also of the *nutrix* type, in a pit dated after AD 222-235 by a Iulia Mammaea coin (Dhaeze *et al.* 2018).



moulds. As a result of the production of these moulds, small air bubbles were formed in the plaster, leading to small voids at the surface of the moulds and small blisters on the surface of the figurines. Also the composition technique differed at the Rhineland. There, both halves were fixated to each other while they were still in the moulds, resulting in a pressed seam of which the exterior had to be readjusted. The sides at the seam were flattened and vague details were retraced.

The first figurine represented a sitting figure in a chair with straight smooth sides without detail (no. 4). Two non-fitting pieces were found from the same figurine (largest fragment: 10.7 cm high, 3.5 cm wide; smallest fragment: 2.4 cm high, 3.4 cm wide). They were found in the same context and display an identical fine sandy fabric. The first fragment shows the side of a chair with the left arm and hand of a sitting figure. The second fragment is a piece of the front or back of the base of the figurine. Based on the sandy fabric, the statuette was produced at the Mosel region. Moreover, the chair and the position of the arm are characteristic for figurines of a sitting woman with fruits or a little dog on the lap, very popular scenes for the Mosel workshops. The Oudenburg fragment was found at fort level 4 dated to the late 3rd century.

A second fragment also belongs to a chair with smooth sides (3.9 cm high) (no. 5). It shows the typical traces of the smoothening of the side. The lacking of further details does not enable to identify the representation. The fragment was found in the filling-in of the large basin of fort level 5; its find context dates from the end of the last military occupation of the fort.

The third fragment most likely represents the legs of a standing figure with falling dress folds (2.8 cm high, 3.5 cm wide; max. length: 3.9 cm) (no. 6). The side of the dress is partly highlighted by a row of dots. This piece also shows traces of the smoothening of the side. It was found in a fire layer (context OS 7957/7971) marking the end of fort level 4.

#### 2.4. Unattributed statuette fragments

Fragments of two figurines display too little detail or are too abraded to make an identification of the origin or of the representation possible.

Two fragments, belonging together, show a crackle finish on the surface and are secondary burnt (largest fragment: 3.1 cm high; smallest fragment: 2.0 cm high) (not ill.). They display the same calcareous fabric. Both were found in the fire layer of Unit V of fort level 4 (context OS 8905B).

A second figurine fragment (no. 7), with a maximal length of 4.9 cm, has as only detail five straight parallel grooves of uneven length on a smooth surface. It was recovered from a mixed level 4+5.

### 3. A handmade horse statuette

Part of a horse statuette, 3.8 cm high and showing the head (with pointed mule, short ears and manes punched in with the fingers), neck and chest of the horse, was found in the post-Roman dark earth level (no. 8). It most likely represents a residual Roman find, but whether it was dug-up from the fort level or whether this find was brought in with the dark earth from outside the fort, cannot be defined. It is therefore not clear whether this figurine has to be considered as a find from the fort occupation or from the civil settlement. The massive clay statuette was shaped freehand, possibly locally.

### 4. A marble Venus figurine

A marble figurine, c. 17 cm high and found in a pit of fort level 5, shows a torso with upper legs and left arm (no. 9). It represents Venus covering her pubis with her left hand (*Venus Pudica*), a well-known representation. The right arm is not preserved but from the break on the chest can be

deduced that the right hand covered the left chest. Locks of hair fall down on top of the shoulders. The counterpose suggests movement, with the right upper leg slightly brought forward. Apparently the figurine was part of a larger entity within a composition with attributes or figures now missing. To this conclusion point the broken off ends of attributes or connecting parts on the back, namely on the left thigh and the right buttock.

## 5. Three bronze statuettes (by S. Vanhoutte)

A small copper alloy statuette, 7.5 cm high, was found in the mortar and loam gravel floor level attributed to fort level 5A (CA.F03) (Plate CCXLVII). Although very abraded (through corrosion), the representation of Mars is clear, equipped with helmet and shield. The right arm held a lance that is missing, as is also the left leg. The figurine originally stood on a pedestal. Such small statuettes are well-known for North- and Central-Gaul and appear to be characteristic for the 2nd and 3rd centuries (Faider-Feytmans 1979)<sup>189</sup>. Several similar statuettes of Mars are known from Kruishoutem (Vermeulen 1992, 134, 135: Fig. 80, Rogge and Vermeulen 1993, 146-149; Parent 1986). Comparable examples can be mentioned from Blicquy (B) (Amand 1975, 30: Fig. 13: 1, 2), Neuvy-en-Sullias (F) (Gorget and Guillaumet 2007, 191-19) and Boulogne (F) (in a context dated to the last quarter of the 3rd century (Belot 1990, 90-95)). Being amongst other functions primarily the god of war, its presence at the fort is obviously of no surprise.

A small statuette of 4.9 cm high and found in a mixed level 3+4, preserved completely but in a very corroded state, represents an animal, most likely a ram, on a pedestal (diameter base: 3.4 cm) (CA F01). At Colchester a ram statue of similar dimensions was found as a terracotta figurine (Crummy 1983, 145). Crummy refers to the ram as the beast of Mercurius, the patron of merchants and of flocks and herds. The first function seems to be at its place here at the fort, as the army was also an important trading community as is clear from the study of the pottery and other finds.

To be complete, a very small piece of a figurine should be mentioned here (CA F02). This 1.2 cm long fragment of the foot of a small statue was found in a fire layer marking the end of fort level 4.

Finally, in the covering layers on top of workshop Unit V of fort level 4, an unidentified large copper alloy hollow-cast and curved fragment was found of which can be assumed that it was part of plastic arts (CA F04)<sup>190</sup>. However no further identification is possible. Its find context may indicate that the fragment was intended to be used as scrap metal for remelting.

## 6. Significance and wider context of the Oudenburg figurines

Figurines were very common in the Roman world and occur in various contexts. Looking at the finds from the Oudenburg fort, the late dating of the find contexts immediately attracts attention. According to the current knowledge, the continuing production of terracotta statuettes in the 4th

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<sup>189</sup> Of the same size, two small statuettes are known from outside the fort precinct, both representing the naked Mercurius with his characteristic small wings on top of the head. A first statuette was found by chance in the 1970s as an unstratified find at the precinct of the late Roman military graveyard A. Hollevoet (1986) believed it to belong to the civil settlement. A ring-shaped thickening around the neck of this Mercurius, not related to the figure itself, has been interpreted by Thoen (in Hollevoet 1986, 78: footnote 12) as the remains of a link of a chain. A very similar Mercurius statuette (c. 5 cm preserved length; under legs and arms broken off) was found in 2014 in the settlement area to the east of the fort, along the west-east road at the site Belleroche (ET28) (unpublished material from on-going post-excavation research, BAAC). The find of two statuettes of Mercurius, amongst other functions the protector of trade, can be seen as a reflection of the trading function the civil settlement fulfilled. Similar small-sized Mercurius statuettes were found at Boulogne (F) for example (Belot 1990, 86-87). A Mercurius statuette was also found in the lowest levels on the Aardenburg fort precinct and can be dated there in the second half of the 2nd century (Besuijen 2008, 65).

<sup>190</sup> From the earlier excavations by Mertens, only one bronze statuette is known, found in 1970 (1970 Trench I; unpublished material, mentioned in Mertens 1970). The uncomplete statuette, kept in storage at the depot of the Flanders Heritage Agency, shows an unidentified male (?) figure richly-dressed.

century can only be justified for the pottery at Trier-Süd. The Oudenburg fragments originating at the Mösel region can therefore fit in well. For the Central-Gaulish products, a late dating is difficult. A late potter Pistillus still produced into well in the 3rd century and maybe he had some successors in Autun and Gueugnon, but from the 4th century there is no export-oriented production known in Central Gaul (De Beenhouwer 2014a; 2014b). According to the analysis of the series and the style evolution, the *nutrices* of Oudenburg are clearly late products, but a dating in the 4th century is not evident. It is therefore very likely that they are residual items coming from a context of an earlier level, most likely fort level 4 of the late 3rd century.

From recent study on terracotta figurines in North-West-Europe and more specifically in the *civitas Tungrorum*, the conclusion can be drawn that in the 2nd and 3rd century they were primarily cult objects belonging to the private atmosphere (De Beenhouwer 2005; 2014c)<sup>191</sup>. They were offered anonymously in temples or formed part of the burial rite. Figurines are exceptionally found in *lararia*, as e.g. finds at Rezé (France) demonstrate (Santrout 1993; De Beenhouwer 2005, 1425-1426). Some assemblages in *vici* suggest that they were displayed in a small home shrine, as became clear from the find context of two intact idols in a basement furnished with niches in a house at Liberchies (Werner 1985; Brulet and Demanet 1993, 162-167; De Beenhouwer 2005, 191-192, 836). The composition of some burial assemblages also gives that impression. Moreover, some Venus and Minerva statuettes picture these goddesses in an *aedicula* and could form as such a *lararium* on their own.

Since figurines are cult objects belonging to the private atmosphere, every individual made its own personal choice and therefore no presentation is a surprise, neither in a military base. Typical military oriented figurines, as the Mars statuette, can obviously be expected, since the soldierhood affected also the individual and hence the choice of religious oriented objects in the private atmosphere. The study of the terracotta figurines from the soldiers' barracks at the fleet base of Alteburg near Cologne revealed that the rather rare figurines of 'Victoria on the Rhine' were more common in military context. The most important observation was however that the figurine spectrum hardly differed from the themes common on civil sites (De Beenhouwer *forthcoming*).

The stone statuette found at the south-west corner site cannot be simply unified with the terracotta figurines. On an iconographic level, the theme of the *Venus Pudica* occurs in the same way in terracotta<sup>192</sup>. It connects very well with the iconography of the many Venus figurines that were very popular in North-West-Europe. However, two elements make the stone Venus a totally different product. Being in marble, this statuette expresses prestige which makes it obvious that it was meant to show publicly, in contrast to terracotta figurines which were cheaper series products. The marble figurine also expresses prosperity and *romanitas* of the individual who gave the order to make it. It therefore rather belonged to the public atmosphere. Remarkably, Venus was not at all popular in the public-religious atmosphere in North-West-Europe; only seldomly she is mentioned in epigraphic sources. This statuette was found in fort level 5, in a pit to the north of the bath house. The presentation of *Venus Pudica* as shown on the statuette in question, originates from the Greek-Roman imagery and is based on the theme of Venus after bathing. The choice of material and the choice of theme indicate that a link with the bath house, a building in the public atmosphere, is very likely. The *Venus Pudica* may have adorned a niche in the baths. A second element that make this stone statuette so different than the terracotta figurines lies in its durability; it was obviously less breakable. Terracottas were often used, sometimes in a second life, as votive object, whereby the possibility to break could be important, for example in cremation burials, but also with other ritual practices. Their fragility and the fact that terracotta figurines belong to the private atmosphere make clear that they cannot be simply unified with statuettes or other images in other materials.

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<sup>191</sup> *Dea Nutrix* figurines are comparatively rare in Britain. For their distribution in *Britannia*: see Jenkins (1958).

<sup>192</sup> Cf. for example the Venus figurine found at the civil settlement to the west of the fort, underneath the late Roman military graveyard A (site ET06). It originated from the Allier workshops in Central Gaul (Creus 1975, 30).

## APPENDIX 27 - Leather finds at the Oudenburg fort: shoes and some other peculiar finds at the south-west corner site

### 1. Introduction to the assemblage

The find of rather large leather complexes at the south-west corner site of the Oudenburg fort is extremely important. Not only do they give a unique insight into the identity of their wearers; they also represent one of the few footwear complexes of the 3rd and 4th centuries, in contrast to the large footwear complexes known from the 1st and 2nd centuries. The footwear recovered from four contexts at the Oudenburg site gives a unique insight into the stylistic and technological changes in footwear occurring between AD 250 and the early 5th century due to the rather close dating of their find contexts.

In total, the leather finds at the Oudenburg site count for 117 entries. The present text, based on the identifications and interpretations by C. van Driel-Murray (Leiden University, the Netherlands) (see van Driel-Murray 2016), is not intended to give a fully detailed account of the leather finds but focuses on the conclusions retrieved from the detailed study of the finds; the full study, accompanied by the catalogue with all representative fragments illustrated, will be published separately by van Driel-Murray in the final site publication. It is my aim to focus here on the leather items that can attribute to a better understanding of the gender and cultural identity of the fort inhabitants.

### 2. The find contexts of the leather assemblages

The leather of the Oudenburg site was preserved in four separate contexts, two belonging to fort level 4 and two from fort level 5.

Fort level 4 is represented by contexts OS 4980 and OS 22926. The primary fillings of the large waste-pit OS 4980 (Plate XLIX) can presumably be closely dated to AD 268-275 based on coin and pottery evidence (see Addendum 10). Dendrochronological analysis of the well OS 22926 yielded a felling date for the framework between AD 260 and 275 (Plate L). The abandonment level of the well is characterised by *Tetrici* radiate copies dated c. AD 275-300; these were absent in the primary fillings of the rubbish pit OS 4980.

Fort level 5 is represented by contexts OS 4923 and OS 2562. Based on pottery evidence, the construction of the large water-basin can be dated to the last quarter of the 4th century. The abandonment and filling-in of the basin, and thus likely also the throwing in of the leather, is – based on the stratified evidence – related to the abandonment of the Oudenburg fort which can be situated in the first decades of the 5th century (Plate LIV). Most leather of the double well OS 2562 originates from the primary fillings of the latest, inner well. Some leather finds were recovered from the bottom of the shaft in between both frameworks but they only just pre-date the installation of the inner well (Plate LII). The framework of this inner well is dendrochronologically dated resulting in a felling date of AD 379/380. The abandonment and filling-in of the inner well can equally be related to the end of the Oudenburg fort in the first decades of the 5th century.

### 3. General character of the leather assemblage and indications for local shoemaking

The leather assemblage of the Oudenburg site almost entirely consists of shoes and some off cuts. Only one leather artefact was found: a very roughly made archer's brace was recovered from the inner well of context OS 2562 (Fig. 124). It can therefore be dated to the late 4th century-early

5th century. This wrist-guard, roughly cut from old leather, seems to be an incidental item and cannot be considered as evidence for an archery unit. It was probably made by the owner himself, possibly for hunting.



Fig 124: A roughly made archer's brace recovered from the inner well of context OS 2562.

The preserved off cuts, rather low in number, point to local shoemakers working at the Oudenburg fort, however not in the immediate vicinity of the find contexts (see for example Fig. 125). At fort level 2, however, two discarded cobbler's lasts (IR.C68-70; Appendix 22, Section 4.7) were found in a pit to the back of the military hospital, indicative for a nearby shoemaker's workshop. These lasts cannot be related with preserved footwear, though. The footwear recovered from the fort level 4 and 5 contexts represents normal Roman manufacturing traditions. The typological variety of the shoes recovered from all contexts was rather restricted and suggests that during both fort period 4 and fort period 5 the footwear was locally made with only a few workshops at the most at one time. The uniformity seen in the nailing patterns of the footwear assemblage of context OS 4980 and the lack of other hobnails designs which were common in the late 3rd century suggests that during fort period 4 possibly even only one single shoemaking workshop was active at the Oudenburg fort.

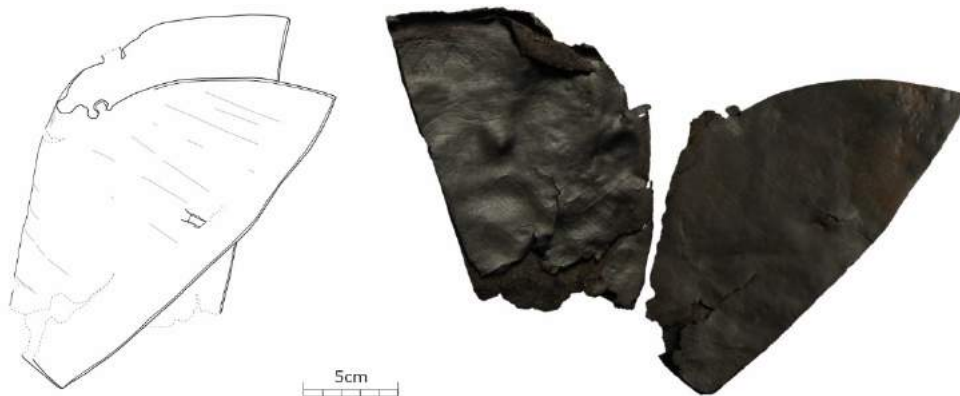


Fig 125: Large piece of double folded cut out found in waste-pit OS 4980 (drawing: C. van Driel-Murray; photo: H. Denis; Composition: S. Mazereel).

The fort level 5 versus the fort level 4 footwear complexes clearly show a shift in shoemaking technology. Most important are the increase in sewn constructions, the appearance of single piece shoes, the gradual disappearance of hobnails, the changing cutting patterns of the shoe uppers and the form of the soles becoming straight, thick-waisted and slightly pointed. These evolutions will be described in detail in the upcoming publication.

#### 4. The footwear complexes



#### 4.1. The OS 22926 complex

The well OS 22926 yielded an isolated, virtually complete shoe, laying at the bottom of the well, in the clay level representing the abandonment of this water structure (Fig. 126). Van Driel-Murray considers this to be a deliberate, and thus ritual, deposit marking the closure of the well as a source of water. The shoe was for a left foot, as is so often the case with ritual depositions. What such shoe as offering exactly represented, is unclear; the preference for old, worn footwear seems to point to a function as substitute, personal attribute. The shoe mediates between the human being and the earth and was therefore plausibly the appropriate ritual offer for the subterranean forces who delivered clean water through a deep, disturbing shaft (van Driel-Murray 1999). A well was not only seen as a shaft through which contact with the underworld was possible, but was presumably also considered more generally as a place where any religious communication was possible (Karst 2016, 66).

The shoe in question is a low version (medium-high) closed ankle boot covering the entire foot with two pairs of eyelets fastening at the ankle, a very popular type in the second half of the 3rd century and occurring both at military and civil sites in all sizes (van Driel-Murray 2001, 367, Fig. 63). The sole from the Oudenburg shoe was very damaged, but a size 33-34 seems plausible, the standard size for women in Roman times. The shoe was already old and severely worn, with several repairs, and broken in two when deposited. The decorative stitching on the front of the Oudenburg shoe was introduced in the later 3rd century and gained in popularity in the 4th century. This chronological aspect fits in well with the closing of the well which is situated in the last quarter of the 3rd century based on the presence of the *Tetrici* radiate copies. The rubbish pit OS 4980 also contained this type of footwear, however all undecorated individuals.



Fig 126: The leather shoe found in well OS 22926, fort level 4. a: localisation of the find at the bottom of the well; b: detail of the shoe *in situ*; c: reconstruction of the OS 22926 shoe made with assistance from C. van Driel-Murray (ill. by S. Mazereel).

#### 4.2. The OS 4980 complex

The leather complex of the large waste-pit OS 4980 is the largest assemblage, comprising 52 entries, almost entirely consisting of footwear. The leather represents re-deposited material as the condition of the shoes is poor, components are missing and there are only a few pairs. Some shoes look to have dried and rotted before being finally sealed, which fits in well with the interpretation of this structure as a large rubbish pit.

A minimum of 33 shoes could be counted, all worn out, for the most part nailed shoes besides a small number of single piece shoes (cf. illustrated selection: Fig. 127-130). There was apparently rather little choice in the footwear styles available to the fort inhabitants. The OS 4980 complex is the only assemblage where nailed soles regularly occur, some examples with uppers still attached. Hobnails usually showed a decorative pattern in Roman times (van Driel-Murray 2001). Much significance was apparently attached to the effect they had in the imprint left on the ground. The



hobnail patterns can therefore be considered as means of self-expression within the community (van Driel-Murray 1999). The preferential nail pattern at the OS 4980 complex was a single line around the edge and an S under the tread, but exuberant hobnail decorations like the ones known from 3rd-century complexes at London, Vindolanda and Voorburg for example are lacking. The Oudenburg footwear complex with its dominance of S-nailing patterns shows close parallels with assemblages found at Zugmantel (Busch 1965), the London New Fresh Warf site (MacConnoran 1986, 218) and Valkenburg (Hoevenberg 1993), all dated to the early to mid-3rd century, rather than with late 3rd-early 4th century complexes from London and Britain in general.



Fig 127: Complete left male ankle boot from rubbish pit OS 4980, upperside and underside.



Fig 128: Huge right male shoe from waste-pit OS 4980, upperside and underside.



Fig 129: Part of left woman shoe recovered from rubbish pit OS 4980.



Fig 130: Left child shoe fragment from waste-pit OS 4980.

#### 4.3. *The OS 2562 complex*

The original infill of the outer framework, related to the abandonment of this outer well and most likely only just pre-dating the installation of the inner well in the second half of the 4th century, only yielded a decayed fore fragment of an outer sole and two off cuts. However, the bottom and lowest fillings of the inner well yielded a large and varied collection of leather counting 44 entries,

most likely representing a rapid infill, probably with some refuse from a nearby dump where the items had already been exposed to decay. At least 23 shoes can be recognised.

The OS 2562 footwear complex is mainly characterised by single piece and composite sewn or thonged constructions; only a few nailed soles occur. From the early 4th century onwards, nailing as attachment medium begins to lose favour with a sharp decline noticeable in the final quarter of this 4th century. Instead, the outer sole is sewn on with twine or thong tunnel stitches, a construction that had previously been much less common. The single piece and sewn or thonged footwear of the OS 2562 assemblage are regarded by van Driel-Murray as normal 'Roman' products as they all seem to be made according to the familiar technology and materials.

A very remarkable component in the OS 2562 complex are two leather mules or backless slippers, both associated with the stitched envelope edgings of a 10 mm thick cork or wood sole (Fig. 131-133). To the one front which was preserved completely, this sole was still attached at the time of the excavation (Fig. 131). The fragments were identified as linden bark (*Tilia sp.*)<sup>193</sup>. Another, fragmented wooden sole, equally identified as linden bark (Fig. 133), was found loose but may have belonged to the second slipper (Fig. 132). The mules are richly decorated with hatchings and impressed geometric motifs arranged in panels between guide lines. Most likely they were originally lined with felt or fur and they must be regarded as luxurious footwear (van Driel-Murray in Vanhoutte *et al.* 2009b). Slip-on footwear is extremely rare in Roman times and exact parallels for the Oudenburg mules are unknown. The presence of two different slippers in one and the same context makes them even more intriguing. Maybe these mules with wood soles should be brought in association with the presence of the bath house located to the south of the well and active during the preceding subphase until probably the beginning of the second half of the 4th century.



Fig 131: Part of decorated cork slipper for small adult found at the bottom of the inner well of OS 2562.

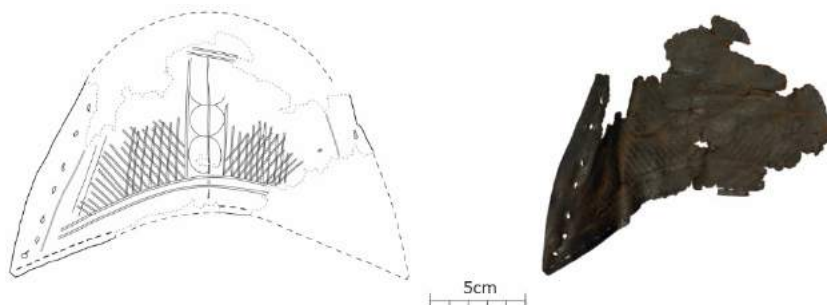


Fig 132: Fragments of backless slipper for a small adult: closed front with decoration of irregular hatching flanking a central panel with five circles lightly pressed in from the back and pieces of the associated envelope covering a cork or wooden sole.

<sup>193</sup> Wood analysis by K. Deforce, Flanders Heritage Agency.



Fig 133: Fragmented cork sole of linden bark (*Tilia* sp.), possibly related to the slipper of the previous figure.

The composite footwear of the OS 2562 assemblage is most commonly thonged together using narrow leather strips. The preserved fragments point to the presence of different styles; they are however difficult to identify with certainty. In contrast, the single piece shoes or *carbatinae* are much better preserved to be more specific on their styles; at least twelve individuals can be counted. At least five individuals of the Wijster style are present in the complex, all male in size (Fig. 134-135). These shoes are closely comparable to those found at the later Roman fort at Cuijk (van Driel-Murray 2007, afb. 10). The presence of some snippets testifies to local making and repairing of this type at the Oudenburg fort. Very significant is the vertical slit on either side of the back seam clearly visible on three of these shoes, which van Driel-Murray relates to the attachment of spurs (Fig. 135).



Fig 134: Back part of a left shoe of the Wijster style recovered from the inner well of double well OS 2562.



Fig 135: Back part of Wijster style shoe with a 'spur vent' at the back, found in the bottom fillings of inner well of OS 2562.

#### 4.4. The OS 4923 complex

The footwear assemblage recovered from the primary infill of the large wooden water-basin OS 4923 and covering twenty entries, presents a completely different profile to the other contexts<sup>194</sup>. At least ten shoes could be distinguished. Five sewn single piece shoes can be recognised as of the Cuijk style (cf. Fig. 136-137) and one nailed shoe is of the Skeldergate style. Neither style is present in any of the other contexts. The many similarities of the Cuijk style shoes found at Oudenburg with those found at Cuijk point to a date in the mid to second half of the 4th century. Significantly, all Cuijk style shoes from Oudenburg had been worn by male adults, while at Cuijk they appear also as women and children shoes (van Driel-Murray 2007). A few off cuts from the same OS 4923 context demonstrate that this Cuijk shoe style was also made at the Oudenburg fort. According to

<sup>194</sup> Although the water-basin OS 4923 cuts into the earlier rubbish pit OS 4980, mixing must have been minor since the shoes from OS 4923 all originate from the infill of the basin and not from the construction pit.

van Driel-Murray (2016) these elements might indicate that these shoes at Oudenburg were the refuse of a specific group of male occupants of the fort, only present here for a short time and wearing distinctive footwear.



Fig 136: Virtually complete, large, right *carbatina* of Cuijk style recovered from large water-basin OS 4923 and reconstruction of this shoe (illustration by S. Mazereel, based on data provided by C. van Driel-Murray).



Fig 137: Large fragment of Cuijk style *carbatina*, covered with impressed lines and swags, found in the primary filling-in of large water-basin OS 4923.

## 5. Indications for gender and cultural identity

The Oudenburg footwear complexes are extremely important in terms of gender distribution. Although there are relatively few complete, measurable soles preserved, the available and reconstructed shoe sizes give a general impression of the presence of male adults, female adults<sup>195</sup> and children as represented in the shoes. In terms of centimeters, the children shoes measure 18 to 22 cm, the adult women shoes 22 to 24 cm and the adult male shoes 25 to 31 cm.

The OS 22926 and OS 4980 shoe complexes of fort level 4 give a window view on the fort population in the late(r) 3rd century. While the shoe of OS 22926 belonged to an adult female, the large waste-pit OS 4980 yielded – based on the soles – at least five children (cf. for example Fig. 130), seven adult female (cf. for example Fig. 129) and thirteen adult male shoes. As for the fort population in the late(r) 4th – early 5th century, we can rely on the information given by the contexts OS 4923 and OS 2562, largely dating to the same period. The assemblage OS 4923 yielded at least eight individuals of which only four soles are sufficiently preserved to have an idea of the size; all four refer to men. The shoes of context OS 2562 belonged to at least two children (cf. for example Fig. 138), four women and five men, based on the preserved soles.

<sup>195</sup> In Roman contexts the division between adult male and adult female is made around size 35 or 23 cm with size 36 forming an overlap between the two size groups.



Fig 138: Child's left shoe recovered from the inner well of OS 2562.

The sum of these counts shows a balanced male/female ratio along with children, both for fort level 4 and fort level 5, and testifies to the permanent presence of families, both in the late(r) 3rd and in the late(r) 4th centuries. Studies by van Driel-Murray have revealed that this gender distribution is comparable to that from *vici* and urban settlements. This clearly demonstrates that the Oudenburg fort sheltered not only soldiers but also their families.

While most of the footwear found at Oudenburg clearly demonstrates a 'Roman' character, the shoes of the Wijster style, all found in the late 4th to early 5th-century well OS 2562, refer to the North and find parallels outside the Roman Empire. This Wijster style is characterised by strongly asymmetrical patterns which are imbedded in Germanic traditions (Gräf 2015). The shoes from Oudenburg appear to be rooted in this tradition, but were clearly made locally using the familiar 'Roman' shoemaking techniques and materials. The earliest shoes of this Wijster type appear around the middle of the 4th century, like at the late Roman fort of Cuijk (van Driel-Murray 2007). Finds outside the Roman Empire are known from a bog burial at Damendorf in Jutland (North of Germany) and at the early 5th century site of Wijster (NE of the Netherlands) (van Driel-Murray 2005); there are no known parallels at *Britannia*. The shoe sizes from Oudenburg indicate that they were all made for men. It is very tempting to relate these shoes to Germanic-rooted soldiers. Being made in a Roman way but with clear Germanic decorations, these shoes can be considered as 'assimilated' finds. These shoes occur together with clear Roman elements such as the Cuijk style shoes, the mules, the nailed and sewn soled shoes. The same situation is recognised at the late Roman fort of Cuijk (van Driel-Murray 2007). Such a 'marriage between Roman and Germanic shoemaking traditions' as Ambrose (in Cunliffe 1975, 260) named it, was also encountered with a shoe recovered at Portchester fort. It shows a normal Roman stud arrangement, but an upper with features common on Anglo-Saxon shoes. Another example also displayed such features.

A remarkable extra feature is the vertical slit at the back of some of these shoes, most likely enabling the attachment of spurs and thus evidence for the presence of cavalry at the Oudenburg fort in the late(r) 4th – early 5th century.



## APPENDIX 28 - Stones at the Oudenburg fort

### 1. Introduction

Tournai limestone is the dominant stone used at the Oudenburg fort. A wide range of other stones is present in very small quantities, except volcanic tuff, which is also significantly present. These stones do not all represent building material; some specific stone materials occur only as querns, whetstones or as fine objects<sup>196</sup>. In what follows, only an assessment is given of the stone material present at the Oudenburg fort (with thanks to R. Dreesen (Royal Belgian Institute for Natural Sciences) for the identification of the different stones). An important addition constitutes of the recent identification of a significant amount of whetstones from the Weald, Sussex (UK) (Reniere *et al.* 2018). Most of them were found from fort level 4 – the later 3rd century – onwards (with one found in an earlier level, at fort level 2), emphasising the cross-channel connection from the second half of the 3<sup>rd</sup> century onwards as is so clear from the pottery.

### 2. Supplies of stone building material

In the North-Menapian landscape hard natural rock, suitable as stone building material, hardly existed and stone building material had to be mainly imported. From local/regional origin, a variety of fieldstones are present at the site, in limited quantities, not strictly used as building material, but mainly seen in the construction of paths and roads. Locally, fieldstone was the only available natural rock, but it was not easy to work with. Superficial banks of fieldstones are located in the region Aalter-Tielt-Torhout. It has been used as building material in the fort of Maldegem (Fobe and De Geyter 1986) and that of Aalter-Loveld. From the large-scale use of fieldstone at this latter fort and at several sites in the surroundings, De Clercq concluded to a large intentional exploitation of this stone (De Clercq 2009, 168). At the Oudenburg fort, it seems to have not been used as construction material for buildings.

Tournai limestone originates from the current province of Hainaut, the region around Tournai. It was supplied via the Scheldt river, probably through the estuary and the coastal waters, to eventually reach the fort via the tidal channels. It is one of the main stones at Roman sites in the North-West of Gaul, although its use remained limited within the settlements. At some sites, it is known as building material for stone constructions (with stone base courses in mixed timber-stone constructions as assumed *e.g.* at Kruishoutem (Rogge and Van Durme 1987)). Tournai limestone could also be used for making mortar, as temper in pottery and as flux in iron production (Thoen 1977; 1978). De Paepe and Vermeulen (1988) discovered that for material found in East-Flanders, these stones not only came from the region of Tournai, but also from other regions in Hainaut and in the Ardennes in Southern Belgium.

At the south-west corner site, Tournai limestone occurs from fort level 2 onwards in very limited quantities. At fort levels 2 and 3, as far as can be deduced from this small window on the fort precinct, this material was only used for paths, floors and presumably also as support for entrances (cf. fort level 2), but not for upstanding building construction. The Tournai limestone becomes omni-present from fort level 4 onwards. It was the main building material for the construction of the defensive wall which implies that large cargoes of Tournai limestone were transported to Oudenburg. At the south-west corner site it was also used to metal the north-south road along the east side of the workshops area. At fort level 4, the inner building was still mainly constructed using the timber-framing technique. Stone foundations of a rectangular building, mainly of Tournai limestone, were uncovered in the northern sector during 1977 (cf. Chapter II, Section II.3.4). Whether it relates to a construction completely in stone or only with a stone base course in a mixed

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<sup>196</sup> The querns, whetstones and other objects made of stone from the south-west corner site constitute an important component of the doctoral research by S. Reniere, research project 'Romancing the stone. On the provenance, use and socio-economics of stone artefacts in a stone-less landscape', Ghent University, 2013-2017.



timber-stone construction, cannot be deduced. One can assume that the central buildings from fort level 4 onwards were all stone-built.

At the south-west corner site, 41 large volcanic tuff blocks were uncovered<sup>197</sup>. This stone is the so-called 'Römer Tuff', originating from the Eifel region (cf. Dreesen and Dusar 2017), a porous fine-grained stone displaying a colour range from pale beige to dark brown; the Oudenburg stones are all beige. The Römer Tuff is characterised by mm- to cm-sized angular inclusions of dark rock fragments (lava stone, sandstones), pale porous pumice stone fragments (the so-called bims) or reformed crystals (Dusar *et al.* 2009, 515; Nijland 2017). The volcanic tuff originates from the volcano eruptions of the Laacher See of c. 12,000 years ago (Dusar *et al.* 2009, 517-518; Nijland 2017)<sup>198</sup>. At the Oudenburg fort, volcanic tuff blocks occur from fort level 3 onwards. The flattened front sides (often burnt while still in position), the mortar remains on several pieces, and a block with plaster layers still attached, demonstrate that these tuffs were used in wall constructions at fort levels 3, 4 and 5. How they were integrated with the timber-framing technique, often found connected to these, is unclear. In the 11th-century description of the ruins of the Roman fort by the clergyman in his *Tractatus de Ecclesia Sancti Petri Aldenburgensis* (see Chapter I, Section I.4.2), indirect evidence shows that most of the inner building at fort level 5 was built with this stone: '*Habitacula quoque nonnulla infra murorum munimenta levibus ac non valde duris lapidibus constructa errant. Naturaliter autem hii lapides in oriente apud Coloniensem provinciam reperiuntur*'<sup>199</sup>. These stone characteristics can easily be attributed to volcanic tuff.

Other imported stones at the site, only present in small quantities, are a variety of tertiary sandstones from the North of the province of Hainaut, Grandglise Sandstone from Hainaut, possibly also Baincthun Sandstone ('grès de Boulogne')<sup>200</sup> from the Boulogne region, Jura limestones from the Meuse cuesta (Lorraine region) and chalky stones from Mons, the North of France or the British coast.

The 1957 excavations at the St. Peters church located to the east of the fort and built between 1056 and 1070 re-using stones from the fort ruins, yielded, besides blocks of Tournai limestone with remains of Roman mortar, also hard, grey-yellow limestone fragments. The excavator L. Devliegher believed it was Marquise stone (Devliegher 1959, 161), a yellowish oolitic limestone from the Boulonnais region. So far, this could not yet be related to stratified evidence on the fort precinct. Further research is needed to confirm whether this indeed is the stone referred to in the previously mentioned 11th-century tract where the clergyman describes the remains of the northern wall: '*in partibus vero aquilonis fundamentum quadric ac magnis lapidibus ferro et plumbo firmiter infixis antiqua fundaverat manus. Quod genus lapidum in Bononiensi provincia tantummodo inveniri dicitur*'<sup>201</sup>.

### 3. Querns

The Eifel region supplied many hand-mills found at the south-west corner site. In total 343 quern finds from the Roman level as well as from later levels are recorded. The sizes and types of the quern fragments from the post-Roman and mixed levels assume that they are most likely dug-up

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<sup>197</sup> Counting the 41 volcanic tuff blocks together with the several small and medium-sized block fragments, this material accounts for 212.6 kg at the site.

<sup>198</sup> The Laacher See, in the northern Eifel region, is located near Andernach, which was already as origin by Mertens and Van Impe (1971).

<sup>199</sup> Dutch translation by Meijns (1994, 53), here freely translated: 'The houses and several constructions within the fort walls were erected in light stones that were not too hard. These rocks can only be found in a natural way in the east of the diocese of Cologne'.

<sup>200</sup> Further petrographical analysis is needed here for confirmation.

<sup>201</sup> 'However, at the north side an antique hand had made the foundation with square and large rectangular stones, which were connected with iron and lead. They say that this stone can only be found in the county of Boulogne': translated into English from the Dutch translation by Meijns (1994).

items from the fort precinct<sup>202</sup>. Based on the quern rims present and taking into account the cross joins, a preliminary minimum of 38 individuals can be identified for the site. Most of the Oudenburg querns are of the flat rotary type driven by hand; at least two individuals are very thick and much larger, and were probably mechanically driven. Both of them belong to fort level 4. The distribution of the quern finds within the Roman level<sup>203</sup> draws attention to the importance of querns at fort level 4 and 5. Based on the preserved rim parts, two individuals can be attributed to fort level 3, eleven to fort level 4 and fifteen to fort level 5 (no rim fragments were preserved at levels 1 and 2). At fort level 4, workshops were located at the south-west corner area of the fort. These were mainly in service of metalworking, but the find concentrations of charred cereals already pointed to cereal processing or storage there or in the vicinity. The presence of a quern obviously primarily only indicates that the fort inhabitants ate (Rees 2011, 111). However, the large number of querns at fort level 4 – and several querns of fort level 5 may have been dug-up from this level – in combination with the layers of charred cereals may indicate that the querns functioned in a larger-scale processing of cereals for consumption. Moreover, the presence of at least two millstones indicates a certain industrialisation and the larger scale processing into flour (cf. Rees 2011, 111). They also emphasise the multi-functionality of the workshop area.

With only one quern made of sandstone and fifteen fragments (with a MNI of nine) made of arkose/micro conglomerate<sup>204</sup> (identification by P. Degryse (KULeuven, Centre for Archaeological Sciences), the dominance of querns in volcanic rock or 'basalt'-like lava from the Eifel region is clear<sup>205</sup>. Together with the Mayen pottery imports, they point to an important supply route from that region to the Oudenburg fort which must have been organised via the Rhine. The lava quern distribution across the North-West of the Roman Empire will have been primarily focused upon the Rhine; via this route the querns also reached *Britannia*. *Britannia* was well-supplied by lava querns; based on the vast number of querns and the many unfinished querns found at London, the port served as entrepôt (Morris 2010, 79).

An oddity is a rubbing stone made of a septaria concretion in Clay from Boom (Rupel region, south of Antwerp). A presumed drill base, possibly a re-used quern fragment, was made of macquenoise, originating from the border region between Belgium and France.

#### 4. Some imported specialties

The discovery of three marble plate fragments probably belonging to the interior wall decoration of the 4th-century baths, emphasise the vast long-trade network the army could rely on (see Chapter II, Section II.4.7: Fig. 76). Green porphyry and *cipollino verde* originated from Greece. A third 'marble' fragment can be recognised as 'Belgian red marble' (in fact a particular type of limestone) known between Samber and Meuse (East of Belgium)<sup>206</sup>.

Two cosmetic plate fragments<sup>207</sup> can also be related to the bath activities in the 4th century. They offer a glimpse on the Mediterranean network to and from Rome. The porphyry of which they are made (one in *porfido nero* (Fig. 139: 1) and one in *porfido rosso* (Fig. 139: 2)) originates from

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<sup>202</sup> It cannot be completely excluded that some were brought in from outside the fort; however it is not likely that many large pieces were moved over a large distance.

<sup>203</sup> Level 1: one item; fort level 2: eleven items; fort level 3: 31 items; fort level 4: 111 items and fort level 5: 92 items.

<sup>204</sup> One quern made of arkose/micro conglomerate can be attributed to fort level 3, two to fort level 4, six to fort level 5 and one to the post-Roman level.

<sup>205</sup> About the nature of the volcanic rock querns of the region: see Reniere *et al.* 2016, 6-8.

<sup>206</sup> With thanks to R. Dreesen (Royal Belgian Institute for Natural Sciences) for the identification of these stones.

<sup>207</sup> In total eight cosmetic plates or fragments were found at the south-west corner site. Apart from the two fragments in porphyry, they were most often made in Tournai limestone, and at least one in a sandstone. No example can be connected directly to the military hospital of fort level 2, although their use in this complex can be expected. One fragment was found at fort level 3 between Units VI and VII. Two nearly complete cosmetic plates and one fragment are assigned to fort period 4. One of the complete examples was found in the fire layer of workshop Unit V, the other in the fire layer along the western rampart marking the end of fort level 4. The fragment of a sandstone item was recovered from the cellar pit of Unit VIII. Two other examples in Tournai limestone were found respectively at the transition level 5+post and in unstratified position.

Egypt, but was transported to Rome where it was used in *e.g. opus sectile* and where leftovers were processed in items like cosmetic plates<sup>208</sup>. From Rome, these were further distributed to Northern markets. A complete cosmetic plate found at the Kapellestraat site at the north-east side of the fort (Vanhouette *et al.* 2014, 223, 226: Fig. 71), is made in *cipollino verde mandolato* (also known as *campan vert*)<sup>209</sup> (Fig. 139: 3); this stone has its origin in the Pyrenees in France.

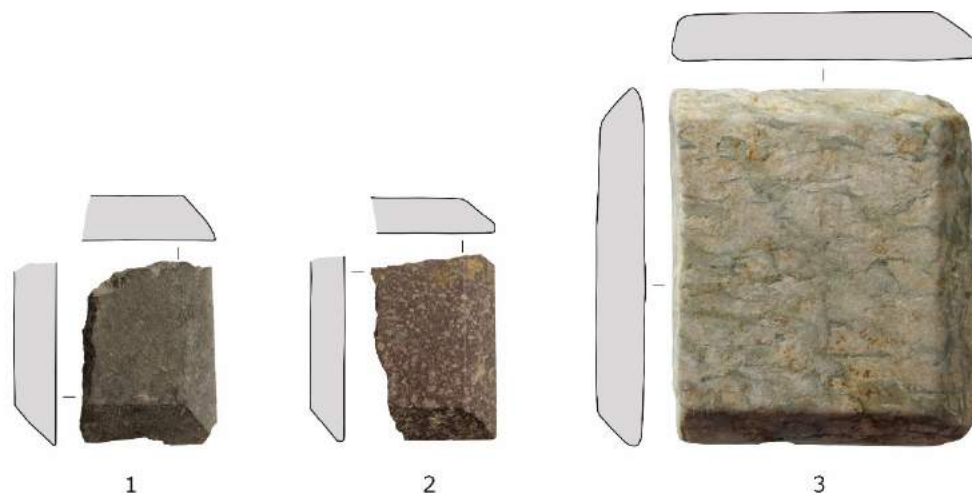


Fig 139: Cosmetic plates. 1: fragment in *porfido nero*, 2.: fragment in *porfido rosso*. Both were found at the south-west corner site. 3: complete cosmetic plate in *cipollino verde mandolato* found at the north-east corner site.

The final fill of the well OS 2562 of fort level 5, related to the end of the last fort occupation, yielded a white mortar in 'Le Quesnoy' quartzitic sandstone (quartz arenite). This stone originates from the current Northern France, where it has been extracted in the vicinity of Douai and to the South of Valenciennes (Robaszynski and Guyetant 2009; Debonne and Dreesen 2015, 160). Such stone mortars occur from the Iron Age onwards (Verbrugge 2016). In the region, mortars of similar type are known from the *burgus* (small road fort) of Taviers in the current province of Namur (Vilvorder 2013) and from the Richborough fort (Dunning 1968)<sup>210</sup>. The cosmetic and medical functions dedicated to stone mortars by Pliny the Elder in his 'Natural History' have been confirmed by discoveries in Aquitaine (France) and Rimini (Italy); however, functions in culinary activities are not excluded (Verbrugge 2016).

Two hair pins and some bracelets found at the south-west corner site are made of jet. Although this could not yet be petrographically confirmed, the Yorkshire coast near Whitby is the most plausible source. One can assume that these items were retrieved through military contacts with the British forts, or that they came along with other British imports. Other black bracelets appear to be of shale. In Britain, the most frequently worked shale was the 'Kimmeridge Clay' with its most famous source in Dorset. The Black-Burnished Ware 1 that was recovered at the Oudenburg fort also originated from Dorset. The shale bracelets may have come along with these handmade imports – or was it the other way around ? –; they definitely used the same trading route. The latter reasoning can also be made for the Central-Gaulish and Trier region figurines found at the site, most likely imported via the same trading routes as the Central- and East-Gaulish pottery.

<sup>208</sup> Identification and information by P. Degryse (KULeuven / Centre for Archaeological Science).

<sup>209</sup> Specification by R. Dreesen (Royal Belgian Institute for Natural Sciences).

<sup>210</sup> Of the eleven mortars presented by Dunning (1968), the examples 1, 4, 5 and 7 of Pl. LXVI (from sources in Britain) and examples 10 and 11 of Pl. LXVII (of white marble) are close parallels for the Oudenburg mortar.